Preface

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Version 1.0

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Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment onto an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

Declaration of Conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

Canadian Department of Communications

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilieur du Canada.

About the Manual

The manual consists of the following:

Chapter 1
Introducing the Motherboard
Describes features of the motherboard.
Go to ⇨ page 1

Chapter 2
Installing the Motherboard
Describes installation of motherboard components.
Go to ⇨ page 7

Chapter 3
Using BIOS
Provides information on using the BIOS Setup Utility.
Go to ⇨ page 27

Chapter 4
Using the Motherboard Software
Describes the motherboard software
Go to ⇨ page 47

Chapter 5
Hybrid Graphics® Technology Support
Describes the Hybrid Graphics® Technology
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Chapter 6
Setting Up AMD SB710 RAID Configuration
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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the A880GM-M6 motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket for AMD Phenom™ II processor (socket AM3) for high-end business or personal desktop markets.

The motherboard incorporates the AMD 880G Northbridge (NB) and SB710 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 3.0 interface. The memory controller supports DDR3 memory DIMM frequencies of 1600 (OC)/1333/1066. It supports four DDR3 slots with maximum memory size of 32 GB*. One PCI Express x16 slot, intended for Graphics Interface, are fully compliant to the PCI Express Gen2 (version 2.0). In addition, two PCI Express x1 slots are supported.

The SB710 Southbridge supports one PCI slot which is PCI v2.3 compliant. It integrates USB 2.0 interface, supporting up to twelve functional ports (six USB ports and three USB 2.0 headers support additional six USB ports). One onboard IDE connector supports two IDE devices in Ultra ATA 133/100/66/33 modes. The Southbridge integrates a Serial ATA host controller, supporting six SATA ports with maximum transfer rate up to 3.0 Gb/s each. It provides AMD SATA RAID configuration with RAID 0, 1 and 10 modes supported.

There is an advanced full set of I/O ports in the rear panel, including one DVI port, one VGA port, one HDMI port, one 1394A port, two eSATA ports, six USB ports, one optical SPDIFO port, one LAN port and audio jacks for microphone, line-in and 8-ch line-out.

** Currently, the memory maximum size we have tested is 16 GB.*

Feature

Processor

This motherboard uses a socket AM3 that carries the following features:

- Accommodates AMD Phenom™ II processor (socket AM3)
- Supports HyperTransport™ (HT) 3.0 interface speeds

HyperTransport™ Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

This board supports CPU up to 125W TDP only.

Chipset

The AMD 880G Northbridge (NB) and SB710 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

AMD 880G (NB)

- One x4 A-Link Express II interface for connection to an AMD Southbridge
- Supports PCIe Gen 2 (version 2.0)
- Proven Radeon™ graphics powering DirectX® 10.1
- Enhanced Digital Display integration
- Fully ACPI 2.0 and IAPC (Instantly Available PC) power management
- Single chip solution in 55nm, 1.1 V CMOS technology
- Integrated ATI Hybrid CrossFire™, ATI Avivo™ HD[1], AMD Cool'n'Quiet™, ATI SurroundView™, AMD OverDrive and AMD PowerNow!

SB710 (SB)

- Compliant with PCI 2.3 specification at 33 MHz
- Supports six Serial ATA devices which speeds up to 3.0 Gb/s
- Integrated USB 2.0 Host Controller supporting up to twelve USB 2.0 ports
- Integrated IDE controller supports Ultra ATA 133/100/66/33 modes
- Supports integrated RAID0, RAID1, and RAID 10 (requires use of 4 or more SATA ports) functionalities across all 6 ports

Memory

- Supports DDR3 1600 (OC)/1333/1066 DDR3 SDRAM with Dual-channel architecture
- Accommodates four unbuffered DIMMs
- 4 x 240-pin DDR3 DIMM sockets support up to 32 GB*

1. Since the AMD CPUs are varies, when A880GM-M6 is using some CPUs, its memory that OC to 1600 before can not run at 1600 now, it will be down to 800. This is normal.

Please refer to AMD website: http://www.amd.com/ for more detailed information about how CPU supports memory.

Herein ECS would like to remind you kindly: although A880GM-M6 has made well preperation for OC function in H/W specification, it still be very important to make the processor that has very good performance to be compliant with the memory also having good performance. When you want to raise up the voltage, please pay more attention to specification as well.

M.I.B.II will give warning by showing red words, but it can not ensure your personal safety in using. Therefore, you should be pay more attention.

2. ***** *Currently, the memory maximum size we have tested is 16 GB.*

Audio

- All DACs support 192K/96K/48K/44.1KHz DAC sample rate
- Software selectable 2.5V/3.75V VREFOUT
- Meets Microsoft WLP 3.08 audio requirements
- Direct Sound 3D™ compatible

Onboard LAN

- Supports PCI Express™ 1.1
- Integrated 10/100/1000 transceiver
- Wake-on-LAN and remote wake-up support

1394a FireWire

- Complies with PCI Express Rev 1.1
- Single chip Compliance with IEEE 1394a-2000, 1394-1995 and 1394a Open HCI host controller integrated 2-port PHY layer function
- Supports 400/200/100 Mbps of data transfer rate

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 slot for Graphics Interface
- Two PCI Express x1 slots
- One 32-bit PCI v2.3 compliant slot
- One IDE connector supporting up to two IDE devices
- Six 7-pin SATA connectors

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66/33 MB/s.

Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- One DVI port
- One VGA port
- One HDMI port
- One 1394a port
- Two eSATA ports
- One optical SPDIFO port
- Six USB ports
- One LAN port
- Audio jacks for microphone, line-in and 8-ch line-out

BIOS Firmware

The motherboard uses AMI BIOS that enables users to configure many system features including the following:

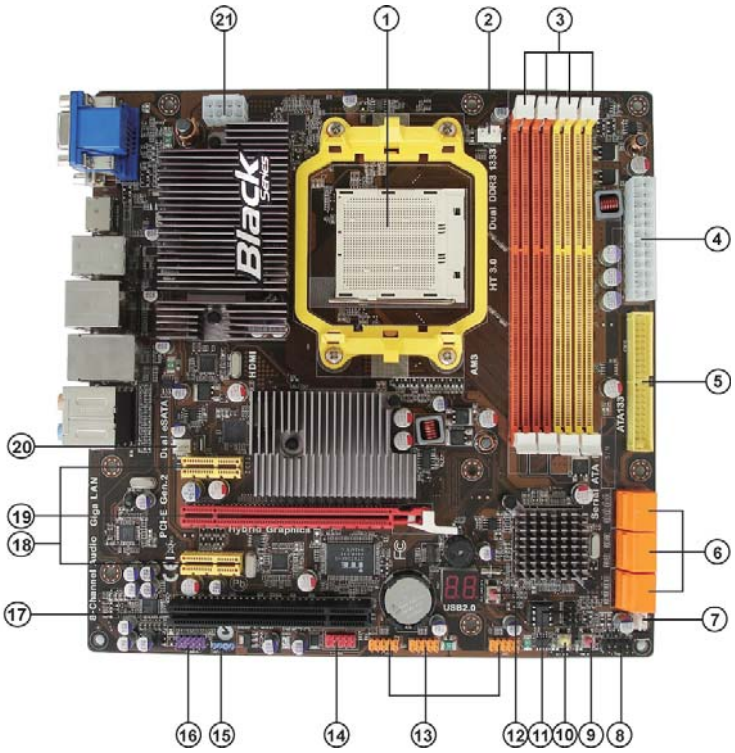
- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds. And it is available to adjust the voltages of the CPU, NB and SB.

1. Some hardware specifications and software items are subject to change without prior notice.

2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50°C.

Motherboard Components



The above image is for reference only; please take the actual motherboard for detailed parts.

Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	Socket for AMD Phenom™ II processor (socket AM3)
2. CPU_FAN	CPU cooling fan connector
3. DDR3_1~4	240-pin DDR3 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. IDE	Primary IDE connector
6. SATA1~6	Serial ATA connectors
7. SYS_FAN	System cooling fan connector
8. F_PANEL	Front Panel switch/LED header
9. PWR_BTN	Power on button
10. RST_BTN	Reset button
11. SPI_DEBUG	SPI DEBUG header
12. CLR_CMOS_BTN	Clear CMOS button
13. F_USB1~3	Front Panel USB headers
14. F_1394A	Onboard 1394a header
15. SPDIFO	SPDIF out header
16. F_AUDIO	Front Panel Audio header
17. PCI	32-bit add-on card slot
18. PCIE1~2	PCI Express x1 slots
19. PCIEX16	PCI Express x16 slot for graphics interface
20. PWR_FAN	Power cooling fan connector
21. ATX12V	8-pin +12V power connector

This concludes Chapter 1. The next chapter explains how to install the motherboard.

Chapter 2
Installing the Motherboard

Safety Precautions

- Follow these safety precautions when installing the motherboard
- Wear a grounding strap attached to a grounded device to avoid damage from static electricity
- Discharge static electricity by touching the metal case of a safely grounded object before working on the motherboard
- Leave components in the static-proof bags they came in
- Hold all circuit boards by the edges. Do not bend circuit boards

Choosing a Computer Case

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro ATX system case. Firstly, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports two enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the motherboard.

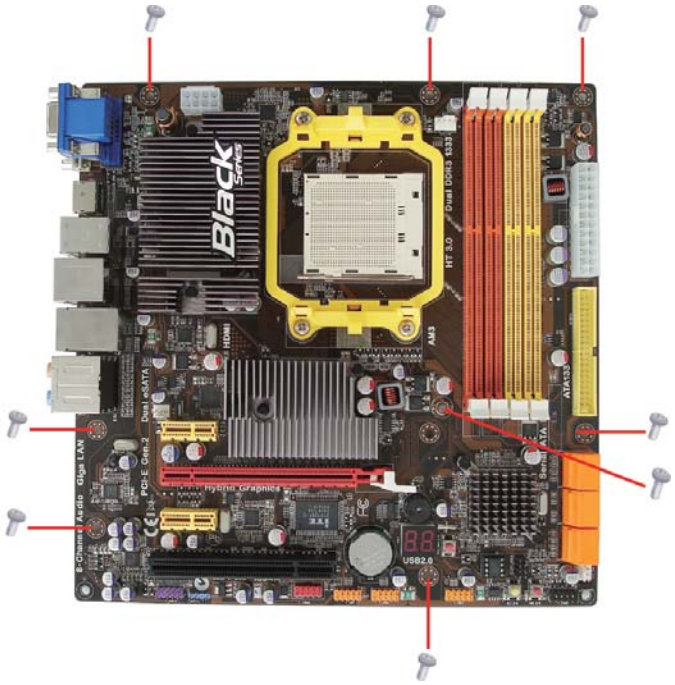
This motherboard carries a Micro ATX form factor of 244 X 244 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

Refer to the following illustration and instructions for installing the motherboard in a case.

Most system cases have mounting brackets installed in the case, which correspond the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.

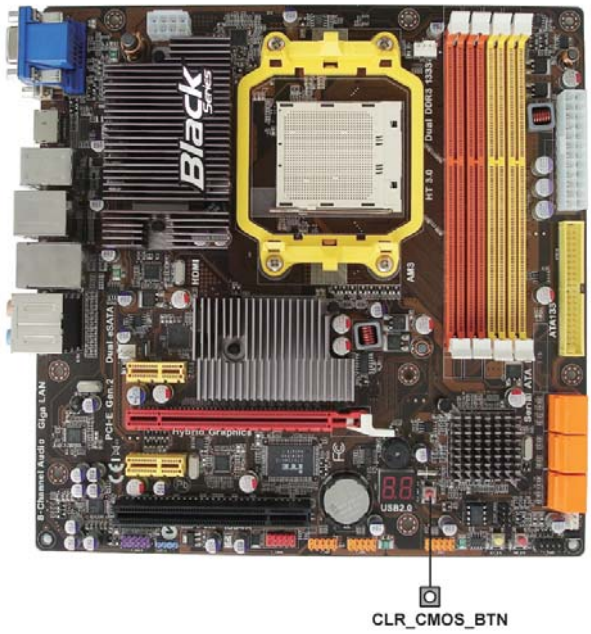
Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.



Do not over-tighten the screws as this can stress the motherboard.

Checking clear CMOS button

The following illustration shows the location of the clear CMOS button.



Name	Type	Description	Setting (default)	
CLR_CMOS_BTN	button	CLEAR CMOS	NO PUSH: NORMAL PUSH: CLEAR Before clearing the CMOS, make sure to turn the system off.	**CLR_CMOS_BTN**

To avoid the system unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save Changes and Exit".

Installing Hardware

Installing the Processor

Caution: When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the motherboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the motherboard, you may cause serious damage to the motherboard or its components.

On most motherboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

Before installing the Processor

This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change the settings in the system Setup Utility. We strongly recommend that you do not over-clock processors or other components to run faster than their rated speed.

Warning:

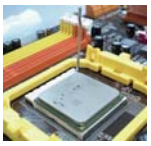
1. Over-clocking components can adversely affect the reliability of the system and introduce errors into your system. Over-clocking can permanently damage the motherboard by generating excess heat in components that are run beyond the rated limits.

2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

This motherboard has a socket AM3 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

The following illustration shows CPU installation components.



1 Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
2 Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.
3 Press the lever down and apply thermal grease on top of the CPU.
4 Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.
5 Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPU fan connector. This completes the installation.

To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates four memory modules. It can support four 240-pin DDR3 1600 (OC)/1333/1066. The total memory capacity is 32 GB*.

DDR3 SDRAM memory module table

Memory module	Memory Bus
DDR3 1066	***533 MHz***
DDR3 1333	***667 MHz***

You must install at least one module in any of the four slots. The total memory capacity is up to 32 GB*.

The four DDR3 memory sockets (DIMM1, DIMM2, DIMM3, DIMM4) are divided into two channels and each channel has two memory sockets as following:

▶▶ Channel 0: DIMM1, DIMM2

▶▶ Channel 1: DIMM3, DIMM4

Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

***** *Currently, the memory maximum size we have tested is 16 GB.*

Installation Procedure

Refer to the following to install the memory modules.

1 This motherboard supports unbuffered DDR3 SDRAM only.
2 Push the latches on each side of the DIMM slot down.
3 Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4 Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5 Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
6 Install any remaining DIMM modules.

For best performance and compatibility, we recommend that users install DIMMs in the sequence of DIMM3, DIMM4, DIMM1 and DIMM2.

Recommend configuration for best performance and compatibility

Number of DIMMs	DIMM 1	DIMM 2	DIMM 3	DIMM 4	AM3
1					Single Channel
2					Dual Channel
3					Single Channel
4					Dual Channel

* When Unganged Mode is disabled

: operation with *normal performance*

: operation with *the best performance*

Table A: DDR3 (memory module) QVL (Qualified Vendor List)

The following memory modules have been tested and qualified for use with this motherboard.

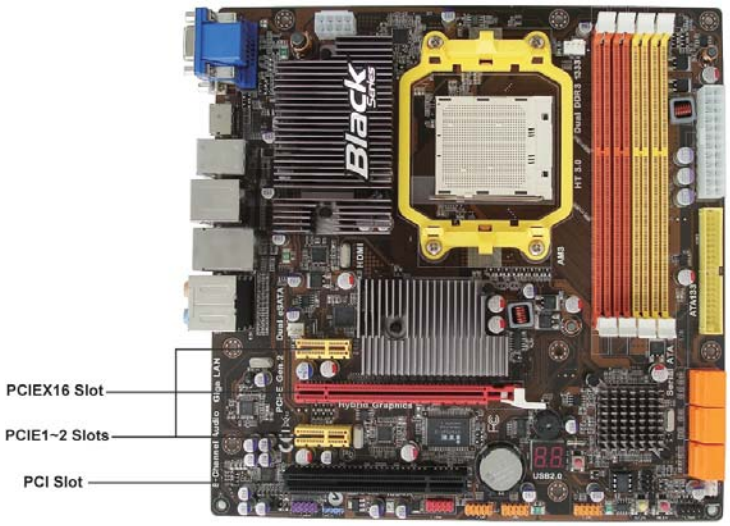
DDR3 800						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Qimonda	IMSH51U03A1F1C-08E	Qimonda	IDSH51-03A1F1C-08E	SS	512MB
DDR3 1066						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Elixir	M2Y2G64CB8HC9N-BE			DS	2GB
2	Elixir	M2Y2G64CB8HC5N-BE	elixir	N2CB1G80CN-BE	DS	2GB
3	Elpida	PC3-8500U-7-00-AP	Elpida	J53088ASE-AC-E	SS	512MB
4	Hynix	HYMT112U64ZNF8-G8 AA	Hynix	HY5TQ1G831ZNFP-G8	SS	1GB
5	Hynix	HMT112U6AFP8C-G7N0 AA	Hynix	H5TQ1G83AFP G7C	SS	1GB
6	Hynix	HYMT125U64ZNF8-G8 AA	Hynix	HY5TQ1G831ZN FP-G8	DS	2GB
7	Hynix	HMT125U6AFP8C-G7N0 AA	Hynix	H5TQ1G83AFP G7C	DS	2GB
8	Kingston	KVR1066D3N7	Elpida	J5308BASE-AE-E 07500W220	SS	1GB
9	Micron	MT8JTF12864AY-1G1D1	Micron	7UD22D9JNL	SS	1GB
10	Micron	MT8JTF12864AY-1G1D1	Micron	8TD22 D9JNL	SS	1GB
11	Micron	MT16JTF25664AY-1G1D1	Micron	7UD22D9JNL	DS	2GB
12	Micron	MT16JTF25664AY-1G1D1	Micron	8WD22 D9JNL	DS	2GB
13	Micron	MT16JTF25664AZ-1G1F1	Micron	9EF22 D9KPV	DS	2GB
14	Micron	MT8JTF12864AZ-1G1F1	Micron	9NF22 D9KPT	SS	1GB
15	Ramaxel	RMR1810NA48E7F-1066-LF	NANYA	NT5CB128H8AN-DE	SS	1GB
16	Samsung	M378B2873DZ1-CF8 0818	SEC	HCF8 K4B1G0846D	SS	1GB
17	Samsung	M378B5673DZ1-CF8 0842	SEC	K4B1G0846D HCF8	DS	2GB
18	Kingston	KVR1066D3N7/512	Elpida	J5308BASE-AE-E 07340W065	SS	512MB
19	Qimonda	IMSH1GU03A1F1C-10F	Qimonda	IDSH1G-03A1F1C-10F FSS15085	SS	1GB
20	Qimonda	IMSH1GU03A1F1C-10G	Qimonda	IDSH1G-03A1F1C-10G FSS14526	SS	1GB
21	Qimonda	IMSH2GU13A1F1C-10F	Qimonda	IDSH1G-03A1F1C-10F FSS15085	DS	2GB
22	Qimonda	IMSH2GU13A1F1C-10G	Qimonda	IDSH1G-03A1F1C-10G FSS13467	DS	2GB
23	Hynix	HYMT112U64ZNF8-G8 AA	Hynix	HY5TQ1G831ZN FP-G8	SS	1GB
24	Samsung	M378B2873EH1-CF8	SEC	HCF8K4B1G0846E	SS	1GB
25	Samsung	M378B5673DZ1-CF8 0842	SEC	K4B1G0846D HCF8	DS	2GB
26	Aeneon	AEH760UD00-10FA98X	Aeneon	AEH93R10F 0737	SS	1GB
27	Elpida	EBJ10UE8BDF0-AE-F	Elpida	J1108BDSE-DJ-F	SS	1GB
28	Elpida	EBJ21UE8BDF0-AE-F	Elpida	J1108BDSE-DJ-F	DS	2GB
29	Corsair	CM3X1024-1066C7			SS	1GB
30	Nanya	M2Y2G64TU8HD5B-BD	elixir	N2CB1G80AN-CG	DS	2GB
31	Winchip	64A0TPHM8G17E	Elpida	J5308BASE-AC-E	SS	1GB
DDR3 1333						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	A-DATA	AD3U1333B1G9-B	Hynix	H5TQ1G83BFR	SS	1GB
2	A-DATA	AD3U1333B2G9-B	Hynix	H5TQ1G83BFR	DS	2GB
3	Apacer	78.A1GC6.9L1	Apacer	AM5D5808ADWSBG	DS	2GB
4	Elixir	M2F2G64CB8HA4N-CG	Elixir	N2CB1G80AN-CG 0903	DS	2GB
5	Elixir	M2Y2G64CB8HC9N-CG			DS	2GB
6	Hynix	HMT112U6AFP8C-H9N0 AA	Hynix	H5TQ1G83AFP H9C	SS	1GB
7	Hynix	HMT125U6AFP8C-H9N0 AA	Hynix	H5TQ1G83AFP H9C	DS	2GB
8	G.SKILL	F3-10666CL9D-4GBRL			DS	2GB
9	G.SKILL	F3-10666CL8D-4GBECO			DS	2GB
10	G.SKILL	F3-10666CL9D-4GBNQ			DS	2GB
11	Kingston	KVR1333D3N9	Elpida	J1108BASE-DJ-E	SS	1GB
12	Kingston	KVR1333D3N9	Elpida	J1108BABG-DJ-E	DS	2GB
13	Kingston	KVR1333D3N9	Hynix	Hynix/H5TQ2G83AFR	DS	4GB
14	KingMax	FLFD45F-B8KG9 NAES	KingMax	KFB8FNGXF-ANX-15A	SS	1GB
15	KingMax	FLFE85F-B8KG9 NEES	KingMax	KFB8FNGXF-ANX-15A	DS	2GB
16	Nanya	NT2GC64B8HAONF-CG	Elixir	N2CB1G80AN-CG	DS	2GB
17	Micron	MT8JTF12864AY-1G4D1	Micron	8UD22 D9JNM	SS	1GB
18	Micron	MT16JTF25664AY-1G4D1	Micron	8WD22 D9JNM	DS	2GB
19	Micron	MT8JTF12864AZ-1G4F1	Micron	9MF22 D9KPT	SS	1GB
20	PSC	AL7F8G73D-DG1	PSC	A3P1GF3DGF	SS	1GB
21	PSC	AL8F8G73D-DG1	PSC	A3P1GF3DGF	DS	2GB
22	Ramaxel	RMR1810KD48E7F-1333	SEC	K4B1G0846D	SS	1GB
23	Ramaxel	RMR186EA48D8F-1333	ELPLDA	J1108BASE-DJ-E	DS	2GB
24	Samsung	M378B2873DZ1-CH9	SEC	K4B1G0846D	SS	1GB
25	Samsung	M378B2873EH1-CH9	SEC	K4B1G0846E HCH9	SS	1GB
26	Samsung	M378B5673EH1-CH9	SEC	K4B1G0846E HCH9	DS	2GB
27	Samsung	M378B2873FHS-CH9	SEC	K4B1G0846F	SS	1GB
28	Samsung	M378B5673FH0-CH9	SEC	K4B1G0846F	DS	2GB
29	Samsung	M378B5273CH0-CH9	SEC	K4B2G0846C	DS	4GB
30	Silicon Power	SP001GBLTU133S01	Nanya	NT5CB128M8AN-CG	SS	1GB
31	Silicon Power	SP002GBLTU133S01	Nanya	NT5CB128M8AN-CG	DS	2GB

DDR3 1333						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Aeneon	AXH760UD00-13GA98X			SS	1GB
2	Corsair	CM3X1024-1333C9DHX			SS	1GB
3	KingsMax	FLFD45F-B8KG9 NAUS	KingsMax	KFB8FNGXF-ANX-15U	SS	1GB
4	KingsMax	FLFE85F-B8KG9 NEUS	KingsMax	KFB8FNGXF-ANX-15U	DS	2GB
5	Kingston	KVR1333D3N9	Micron	8CD22 D9JNM	SS	1GB
6	Kingston	KVR1333D3N9	Kingston	128X8DDR3 SL0931	DS	2GB
7	Kingston	KVR1333D3N9K2/2G	Elpida	J1108BASE-DJ-E	DS	2GB
8	Kingston	KVR1333D3N9/2G	Qimonda	IDSH1G-03A1F1C-13H	DS	2GB
9	Elixir	M2Y1G64CB88A5N-CG	Elixir	N2CB1G80AN-CG	SS	1GB
10	Elixir	M2Y2G64CB8HA5N-CG	Elixir	N2CB1G80AN-CG	DS	2GB
11	Nanya	NT1GC64B88A0NF-CG	Nanya	NT5CB128M8AN-CG	SS	1GB
12	Qimonda	IMSH1GU13A1F1C-13H	Qimonda	0734 IDSH51-03A1F1D	SS	1GB
13	Qimonda	IMSH2GU13A1F1C-13H	Qimonda	IDSH1G-03A1F1C-13H FSS08244	DS	2GB
14	Unifosa	GU502203EP0201	Elpida	J1108BDBG-DJ-F	SS	1GB
15	Unifosa	GU512303EP0202	Elpida	J1108BDBG-DJ-F	DS	2GB
16	Ramaxel	RMR1810E7F-1333	Elpida	J1108BDBG-DJ-F	SS	1GB
17	Elpida	EBJ10UE8BDF0-DJ-F	Elpida	J1108BDSE-DJ-F	SS	1GB
18	Elpida	EBJ21UE8BDF0-DJ-F	Elpida	J1108BDSE-DJ-F	DS	2GB
19	A-data	Game A-DATA 8-8-8-24			DS	2GB
20	Winchip	GDF2GB18L150C8	Winchip	AFE128AYE-15	DS	2GB
DDR3 1600						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	A-DATA	Super speed flying dragon			DS	2GB
2	A-DATA	AX3U1600GB2G9-AG			DS	2GB
3	Elixir	M2Y2G64CB8HA9N-DG			DS	2GB
4	G.SKILL	F3-12800CL9D-4GBNQ			DS	2GB
5	G.SKILL	F3-12800CL9D-4GECO			DS	2GB
6	G.SKILL	F3-12800CL7D-4GBECO			DS	2GB
7	G.SKILL	F3-12800CL9D-4GBRL			DS	2GB
8	KingsMax	FLGD45F-B8KG9 NEES	KingsMax	KFB8FNGXF-ANX-12A	SS	1GB
9	KingsMax	FLGE85F-B8KG9 NEES	KingsMax	KFB8FNGXF-ANX-12A	DS	2GB
DDR3 1800						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Kingston	KHX1800C9D3K3/3GX			SS	1GB
DDR3 2000						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Apacer	78.AAGD5.9KD			DS	2GB
DDR3 2133						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	Kingston	KHX2133C9D3T 1K2/4GX			DS	2GB
DDR3 2200						
NO.	Vendor	Module part number	IC Brand	IC Chip Number	SS/DS	Size
1	KingsMax	FLKE85F-B8KJA FEIH			DS	2GB
2	G.SKILL	F3-17600CL7D-4GBPIS			DS	2GB

Expansion Slots

Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



PCIE1~2 Slots The PCI Express x1 slots are fully compliant to the PCI Express Gen 2 (version 2.0).

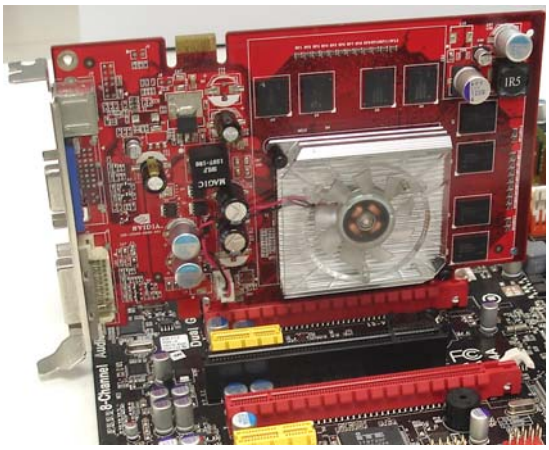
PCIEX16 Slot The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Gen 2 (version 2.0).

PCI Slot This motherboard is equipped with one standard PCI slot. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slot on this board is PCI v2.3 compliant.

Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

Follow these instructions to install an add-on card:

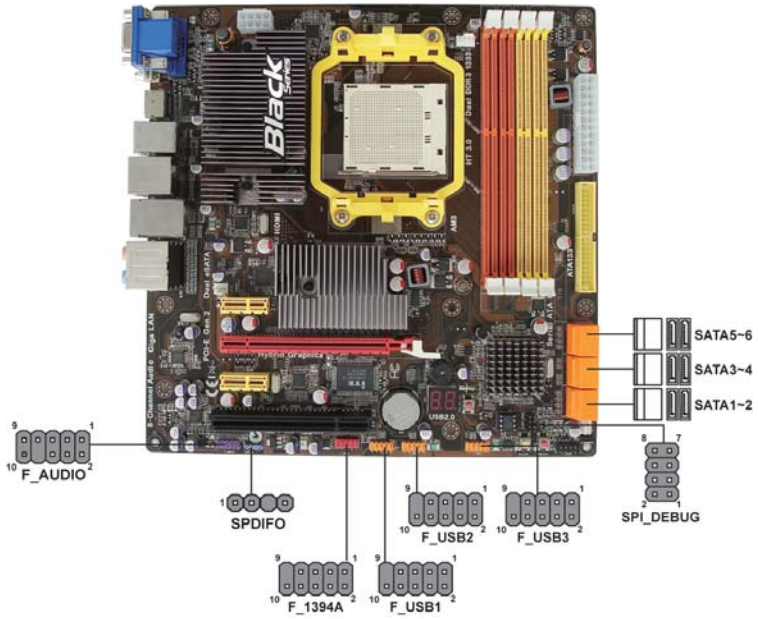
1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.



For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



SATA1~6: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

SPDIFO: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog Power
3	Key	No pin
4	GND	Ground

F_1394A: Onboard IEEE 1394a header

Connect this header to any device with IEEE 1394a interface.

Pin	Signal Name	Pin	Signal Name
1	XTPA1P	2	XTPA1M
3	GND	4	GND
5	XTPB1P	6	XTPB1M
7	PWR	8	PWR
9	Key	10	GND

F_AUDIO: Front Panel Audio header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	AUD_GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT 2L	10	SENSE2_RETURN

SPI_DEBUG: SPI DEBUG header

This 16 MB DEBUG contains the programmable BIOS program.

Pin	Signal Name	Function
1	CHIP SELECT	Select chip
2	VCC	VCC
3	DATA OUTPUT	data output
4	HOLD	hold
5	WRITE PROTECT	BIOS write protect
6	CLOCK	clock
7	CND	CND
8	DATA INPUT	data input

F_USB1~3: Front Panel USB headers

The motherboard has six USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	USB_FP_OC0	Overcurrent signal

Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

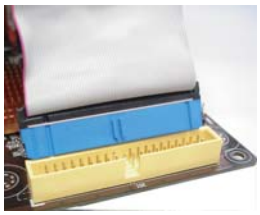
About IDE Devices

Your motherboard has one IDE interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.

You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

IDE: IDE Connector

This motherboard supports six high data transfer SATA ports with each runs up to 3.0 Gb/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. Installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

About SATA Connectors

Your motherboard features six SATA connectors supporting a total of six drives. SATA refers to Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

SATA cable (optional)

SATA power cable (optional)

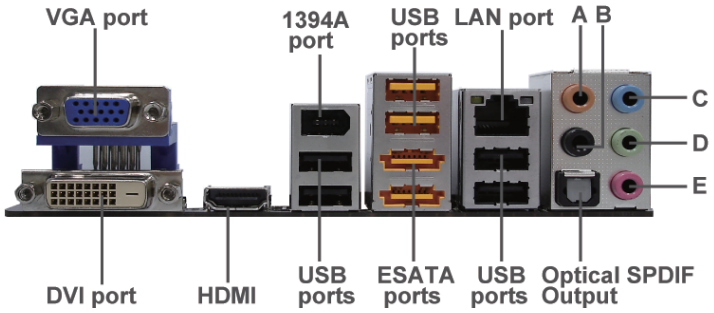
Refer to the illustration below for proper installation:

1 Attach either cable end to the connector on the motherboard.
2 Attach the other cable end to the SATA hard drive.
3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.

This motherboard supports the "Hot-Plug" function.

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:



VGA Port Connect your monitor to the VGA port.

DVI Port Use the DVI port to connect the monitor.

HDMI Port Connect the HDMI port to the HDMI devices.

1394A Port Use the 1394a port to connect any 1394a device.

USB Ports Use the USB ports to connect USB devices.

ESATA Ports Use this port to connect to an external SATA box or a Serial ATA port multiplier.

LAN Port Connect an RJ-45 jack to the LAN port to connect your computer to the network.

Optical SPDIF Output This jack connects to external optical digital audio output devices.

Audio Ports Use the audio jacks to connect audio devices. The C port is for stereo line-in signal, while the E port is for microphone in signal. This motherboard supports audio devices that correspond to the A,B, and D port respectively. In addition, all of the 3 ports, B, and D provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

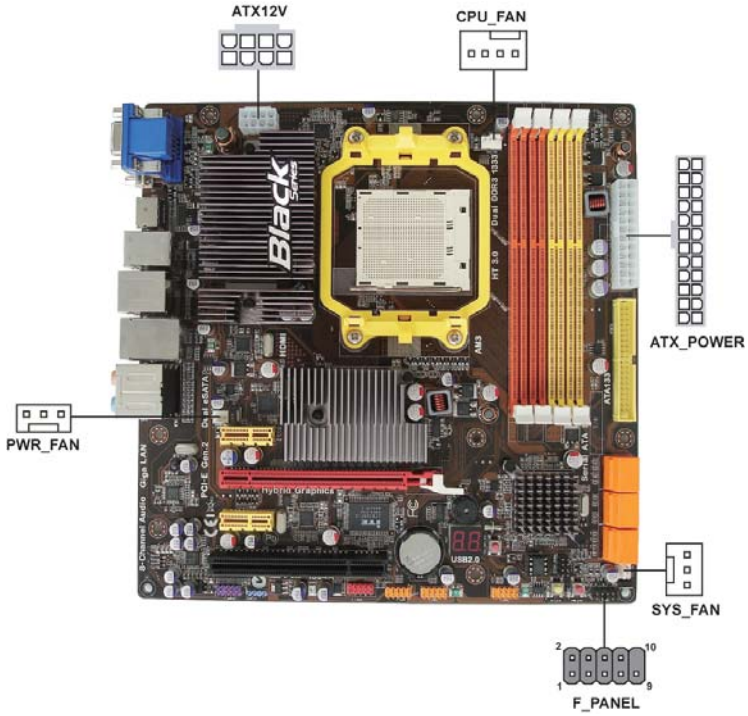
A: Center & Woofer	D: Front Out
B: Back Surround	E: Mic_in Rear
C: Line-in	-

The above port definition can be changed to audio input or audio output by changing the driver utility setting.

Connecting Case Components

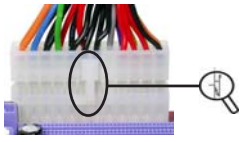
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1 Connect the CPU cooling fan cable to **CPU_FAN**.
2 Connect the standard power supply connector to **ATX_POWER**.
3 Connect the power cooling fan connector to **PWR_FAN.**
4 Connect the case switches and indicator LEDs to the **F_PANEL**.
5 Connect the system cooling fan connector to **SYS_FAN**.
6 Connect the auxiliary case power supply connector to **ATX12V**.



Connecting 24-pin power cable

The ATX_POWER 24-pin connector allows you to connect to ATX v2.x power supply.

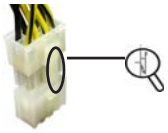


24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX_POWER match perfectly.

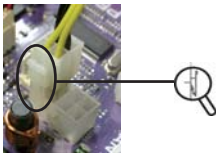
Connecting 8/4-pin power cable

Users please note that the 8-pin and 4-pin power cables can both be connected to the ATX12V connector.



When installing 8-pin power cable, the latches of power cable and the ATX12V match perfectly.

8-pin power cable



When installing 4-pin power cable, the latch falls on the left side of the ATX12V connector.

4-pin power cable

CPU_FAN: FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control

Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

SYS_FAN: FAN Power Connector

Pin	Signal Name	Function
1	GND	Ground
2	+12V	+12V Power
3	Sense	Sensor

ATX_POWER: ATX 24-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	COM
4	+5V	16	PS_ON
5	Ground	17	COM
6	+5V	18	COM
7	Ground	19	COM
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

PWR_FAN: FAN Power Connectors

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

ATX12V: ATX 12V Power Connector

Pin	Signal Name	Pin	Signal Name
1	Ground	5	+12V
2	Ground	6	+12V
3	Ground	7	+12V
4	Ground	8	+12V

Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:

Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED (+)	2	FP PWR/SLP	*MSG LED (+)
3	HD_LED_N	Hard disk LED (-)	4	FP PWR/SLP	*MSG LED (-)
5	RST_SW_N	Reset Switch (-)	6	PWR_SW_P	Power Switch (+)
7	RST_SW_P	Reset Switch (+)	8	PWR_SW_N	Power Switch (-)
9	RSVD	Reserved	10	Key	No pin

***** *MSG LED (dual color or single color)*

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power/Sleep/Message waiting LED

Connecting pins 2 and 4 to a single or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pin 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal de-bounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

This concludes Chapter 2. The next chapter covers the BIOS.

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest "American Megatrends Inc. " BIOS with support for Windows Plug and Play. The CMOS chip on the motherboard contains the ROM setup instructions for configuring the motherboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power Management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

The Standard Configuration

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.

This Setup Utility should be used:

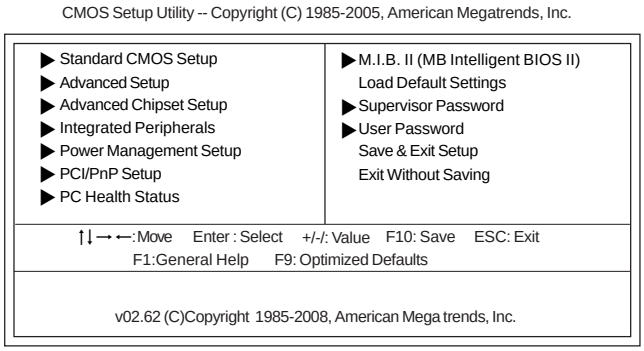
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

Press DEL to enter SETUP

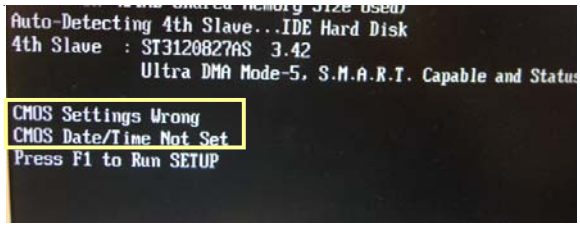
Press the delete key to access the BIOS Setup Utility.

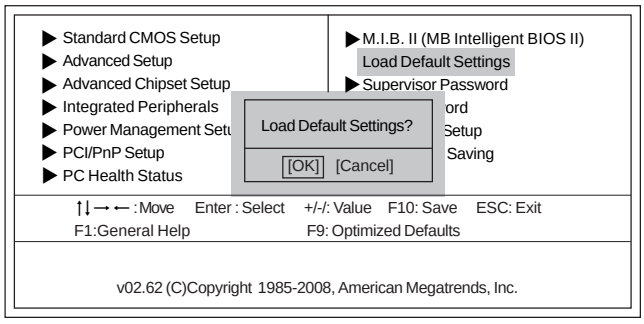

CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.
▶ Standard CMOS Setup
▶ Advanced Setup
▶ Advanced Chipset Setup
▶ Integrated Peripherals
▶ Power Management Setup
▶ PCI/PnP Setup
▶ PC Health Status
▶ M.I.B. II (MB Intelligent BIOS II)
Load Default Settings
▶ Supervisor Password
▶ User Password
Save & Exit Setup
Exit Without Saving
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults
v02.62 (C)Copyright 1985-2008, American Mega trends, Inc.

Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.


Auto-Detecting 4th Slave...IDE Hard Disk
4th Slave : ST3120827AS 3.42
Ultra DMA Mode-5, S.M.A.R.T. Capable and Status
CMOS Settings Wrong
CMOS Date/Time Not Set
Press F1 to Run SETUP


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
▶ Standard CMOS Setup
▶ Advanced Setup
▶ Advanced Chipset Setup
▶ Integrated Peripherals
▶ Power Management Setu
▶ PCI/PnP Setup
▶ PC Health Status
▶ M.I.B. II (MB Intelligent BIOS II)
Load Default Settings
▶ Supervisor Password
ord
Setup
Saving
Load Default Settings?
[OK] [Cancel]
↑↓→← :Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults
v02.62 (C)Copyright 1985-2008, American Megatrends, Inc.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ▶) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ▶.

The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.

BIOS Navigation Keys

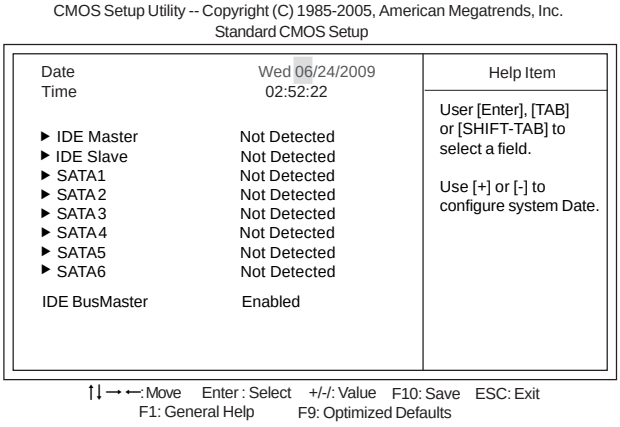
The BIOS navigation keys are listed below:

KEY	FUNCTION
ESC	Exits the current menu
↑↓<->	Scrolls through the items on a menu
+/-	Modifies the selected field's values
Enter	Select
F9	Load a default optimized setting
F10	Saves the current configuration and exits setup
F1	Displays a screen that describes all key functions

For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

Standard CMOS Setup

This option displays basic information about your system.

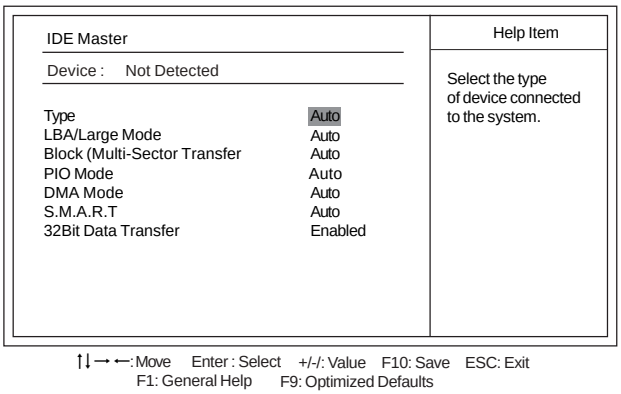

CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.
Standard CMOS Setup
Date Wed 06/24/2009
Time 02:52:22
▶ IDE Master Not Detected
▶ IDE Slave Not Detected
▶ SATA1 Not Detected
▶ SATA2 Not Detected
▶ SATA3 Not Detected
▶ SATA4 Not Detected
▶ SATA5 Not Detected
▶ SATA6 Not Detected
IDE BusMaster Enabled
Help Item
User [Enter], [TAB] or [SHIFT-TAB] to select a field.
Use [+] or [-] to configure system Date.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1: General Help F9: Optimized Defaults

Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

► IDE Master

This motherboard supports six SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the SATA channel.


CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc.
IDE Master
IDE Master
Device : Not Detected
Type Auto
LBA/Large Mode Auto
Block (Multi-Sector Transfer Auto
PIO Mode Auto
DMA Mode Auto
S.M.A.R.T Auto
32Bit Data Transfer Enabled
Help Item
Select the type of device connected to the system.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1: General Help F9: Optimized Defaults

Type (Auto)

Use this item to configure the type of the IDE device that you specify. If the featureis enabled, it will enhance hard disk performance by reading or writing more dataduring each transfer.

LBA/Large Mode (Auto)

Use this item to set the LAB/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Block (Multi-Sector Transfer) (Auto)

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode (Auto)

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode (Auto)

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

S.M.A.R.T. (Auto)

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

32Bit Data Transfer (Enabled)

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

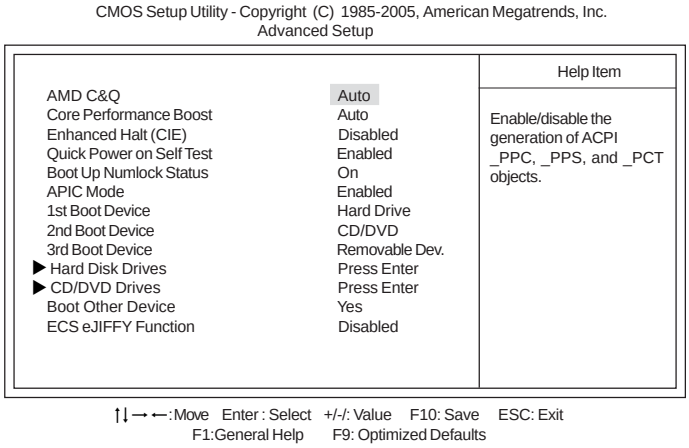
IDE BusMaster (Enabled)

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Press <Esc> to return to the main menu setting page.

Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Advanced Setup
Help Item
AMD C&Q Auto
Core Performance Boost Auto
Enhanced Halt (CIE) Disabled
Quick Power on Self Test Enabled
Boot Up Numlock Status On
APIC Mode Enabled
1st Boot Device Hard Drive
2nd Boot Device CD/DVD
3rd Boot Device Removable Dev.
▶ Hard Disk Drives Press Enter
▶ CD/DVD Drives Press Enter
Boot Other Device Yes
ECS eJIFFY Function Disabled
Enable/disable the generation of ACPI _PPC, _PPS, and _PCT objects.
↑↓→←: Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

AMD C&Q (Enabled)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

Core Performance Boost (Auto)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

Enhanced Halt (C1E) (Disabled)

This item enables or disables enhanced halt.

Quick Power on Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

Boot Up Numlock Status (On)

This item defines if the keyboard Num Lock key is active when your system is started.

APIC Mode (Enabled)

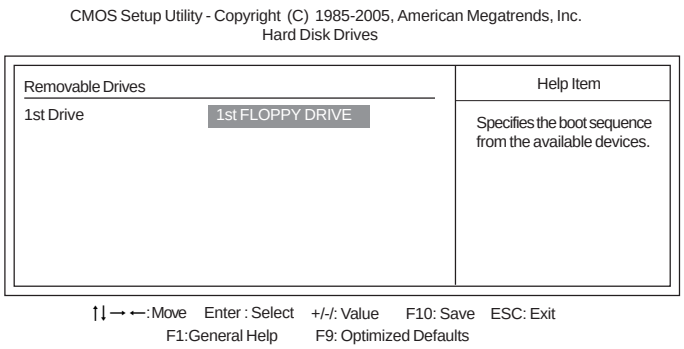
This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

1st/2nd3rd Boot Device (Hard Drive/CD/DVD/Removable Dev.)

Use this item to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different depending on the exact devices installed on your motherboard.

►Hard Disk Drives (Press Enter)

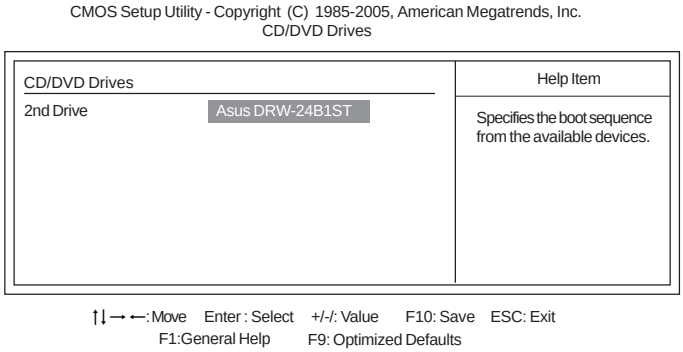
Scroll to this item and press <Enter> to view the following screen:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Hard Disk Drives
Removable Drives
1st Drive
1st FLOPPY DRIVE
Help Item
Specifies the boot sequence from the available devices.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

Press <Esc> to return to the Advanced Setup page.

►CD/DVD Drives (Press Enter)

Scroll to this item and press <Enter> to view the following screen:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
CD/DVD Drives
CD/DVD Drives
2nd Drive
Asus DRW-24B1ST
Help Item
Specifies the boot sequence from the available devices.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

Boot Other Device (Yes)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second and Third boot devices.

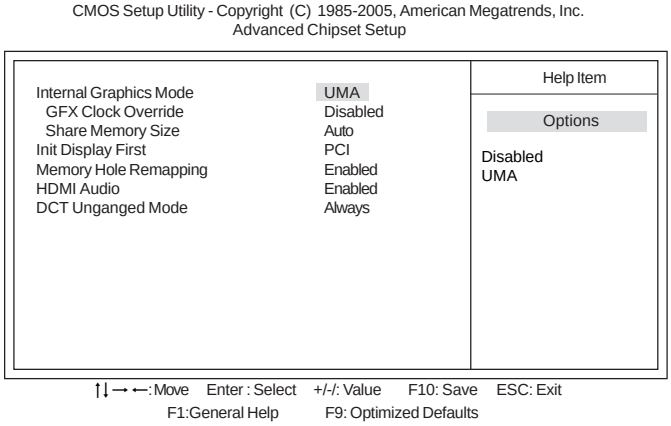
ECS eJIFFY Function (Disabled)

Use this item to enable or disable the ECS eJIFFY Function. eJIFFY is ECS uniquesoftware program for the quick access to the internet without entering O.S. Pleaserefer to Chapter 7 to know more about eJIFFY.

Press <Esc> to return to the main menu setting page.

Advanced Chipset Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



Internal Graphics Mode (UMA)

Use this item to choose the onboard VGA mode. You can select [Disabled] to disablethe onboard VGA, [UMA] to use the system memory.

Warning: If Disabled Internal Graphics Mode, please Loading default toEnable it.

GFX Clock Override (Disabled)

Use this item to enable or disable GFX Clock Override.

Share Memory Size (Auto)

This item lets you allocate a portion of the main memory for the onboard VGA display application.

Init Display First (PCI)

Use this item to select which graphics controller to use as the primary boot devices.

Memory Hole Remapping (Enabled)

This item allows users to enable or disable memory hole remapping.

HDMI Audio (Enabled)

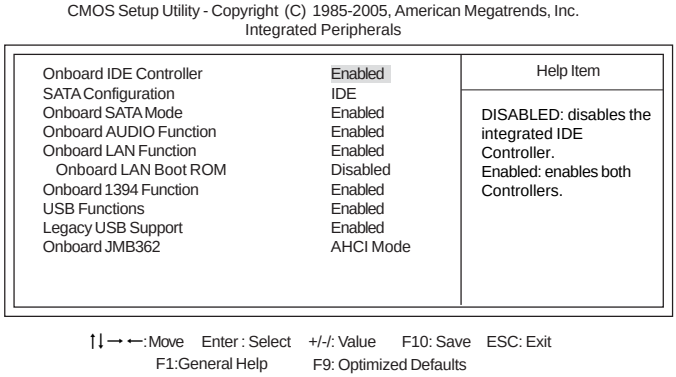
This item is used to enable or disable the onboard audio chip.

DCT Unganged Mode (Always)

This item is used to select the DCT mode (DRAM Controller mode).

Integrated Peripherals

This page sets up some parameters for peripheral devices connected to the system.



Onboard IDE Controller (Enabled)

Use this item to enable or disable the onboard IDE interface.

SATA Configuration (IDE)

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

Onboard SATA Mode (Enabled)

Use this item to enable or disable the onboard SATA mode.

Onboard AUDIO Function (Enabled)

Use this item to enable or disable the onboard Audio function.

Onboard LAN Function (Enabled)

Use this item to enable or disable the onboard LAN function.

Onboard LAN Boot ROM (Disabled)

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

Onboard 1394 Function (Enabled)

Use this item to enable or disable the onboard 1394 function.

USB Functions (Enabled)

Use this item to enable or disable the USB function.

Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

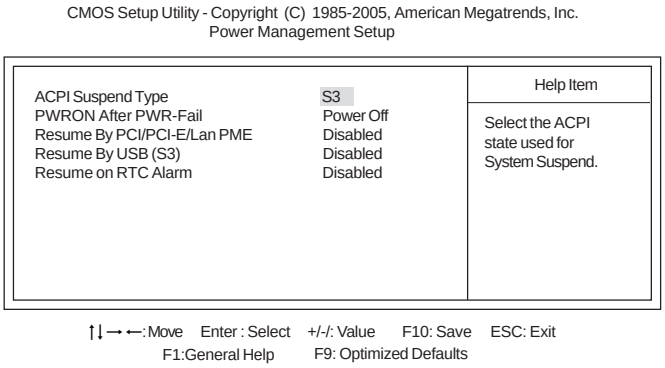
Onboard JMB362 (AHCI Mode)

Use this item to enable or disable the onboard JMB362 mode.

Press <Esc> to return to the main menu setting page.

Power Management Setup

This page sets up some parameters for system power management operation.



ACPI Suspend Type (S3)

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Resume By PCI/PCI-E/Lan PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

Resume By USB (S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

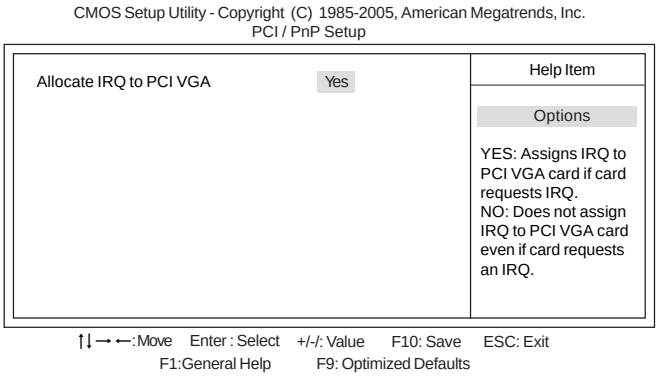
Resume on RTC Alarm (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

Press <Esc> to return to the main menu setting page.

PCI / PnP Setup

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
PCI / PnP Setup
Allocate IRQ to PCI VGA
Yes
Help Item
Options
YES: Assigns IRQ to PCI VGA card if card requests IRQ.
NO: Does not assign IRQ to PCI VGA card even if card requests an IRQ.
↑↓→←: Move
Enter : Select
+/-/: Value
F10: Save
ESC: Exit
F1:General Help
F9: Optimized Defaults

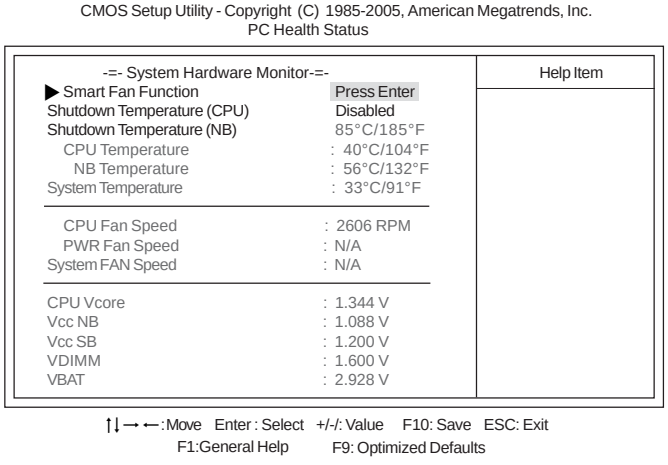
Allocate IRQ to PCI VGA (Yes)

Use this item to select which graphics controller to use as the primary boot devices.

Press <Esc> to return to the main menu setting page.

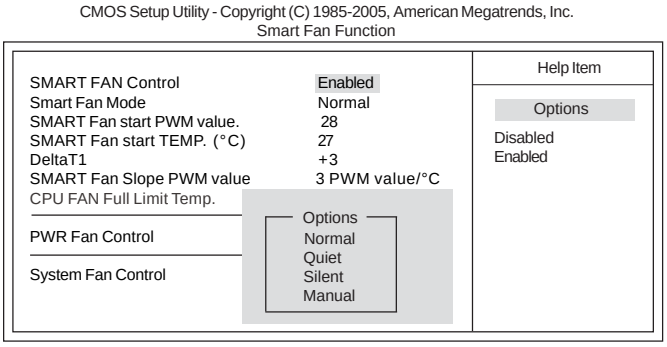
PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



▶ Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:



SMART FAN Control (Enabled)

This item allows you to enable/disable the control of the system fan speed by changing the fan voltage.

Smart Fan Mode (Normal)

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quite mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function

		Help Item
SMART FAN Control	Enabled	
Smart Fan Mode	Quiet	Options
SMART Fan start PWM value.	20	Normal: auto adjusts depending on the CPU temperature
SMART Fan start TEMP. (°C)	52	
DeltaT1	+3	Quiet: auto minimizes fan speed for quiet environment operation
SMART Fan Slope PWM value	8 PWM value/°C	
CPU FAN Full Limit Temp.	65°C	
PWR Fan Control	Disabled	
System Fan Control	Disabled	

↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function

		Help Item
SMART FAN Control	Enabled	
Smart Fan Mode	Silent	Options
SMART Fan start PWM value.	5	Normal: auto adjusts depending on the CPU temperature
SMART Fan start TEMP. (°C)	60	
DeltaT1	+3	Quiet: auto minimizes fan speed for quiet environment operation
SMART Fan Slope PWM value	14 PWM value/°C	
CPU FAN Full Limit Temp.	68°C	
PWR Fan Control	Disabled	
System Fan Control	Disabled	

↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Smart Fan Function

		Help Item
SMART FAN Control	Enabled	
Smart Fan Mode	Manual	Options
SMART Fan start PWM value.	5	Normal: auto adjusts depending on the CPU temperature
SMART Fan start TEMP. (°C)	60	
DeltaT1	+3	Quiet: auto minimizes fan speed for quiet environment operation
SMART Fan Slope PWM value	14 PWM value/°C	
CPU FAN Full Limit Temp.	68°C	
PWR Fan Control	Disabled	
System Fan Control	Disabled	

↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

SMART Fan start PWM value (28)

This item is used to set the start PWM value of the smart fan.

SMART Fan start TEMP. (°C) (27)

This item is used to set the start temperature of the smart fan.

DeltaT1 (+3)

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

SMART Fan Slope PWM value (3 PWM value/°C)

This item is used to set the Slope Select PWM of the smart fan.

CPU FAN Full Limit Temp. (65°C)

This item is used to set the Slope Select PWM of the smart fan.

PWR Fan Control (Disabled)

This item allows you to enable or disable the control of the power fan.

System Fan Control (Disabled)

This item allows you to enable or disable the control of the system fan speed bychanging the fan voltage.

Press <Esc> to return to the Smart Fan Function page.

Shutdown Temperature (CPU) (Disabled)

Enable you to set the maximum temperature the CPU can reach before powering down

Shutdown Temperature (NB) (Disabled)

Enable you to set the maximum NB temperature the system can reach before powering down.

System Component Characteristics

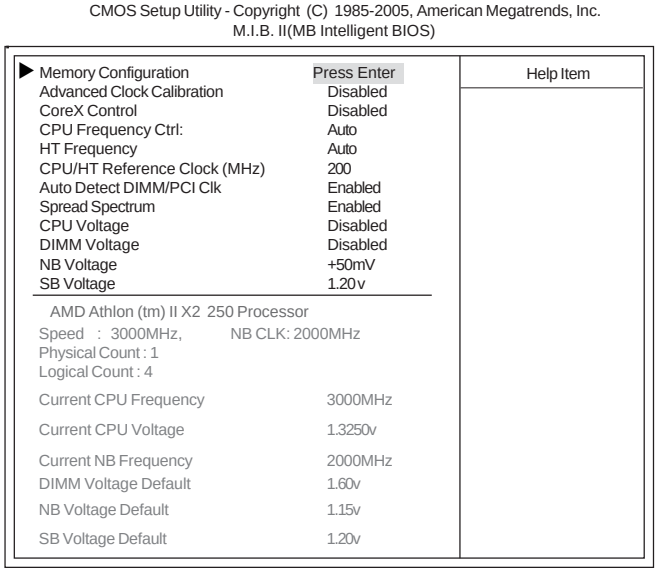
These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

- CPU Temperature
- NB Temperature
- System Temperature
- CPU Fan Speed
- PWR Fan Speed
- System FAN Speed
- CPU Vcore
- Vcc NB
- Vcc SB
- VDIMM
- VBAT

Press <Esc> to return to the main menu setting page.

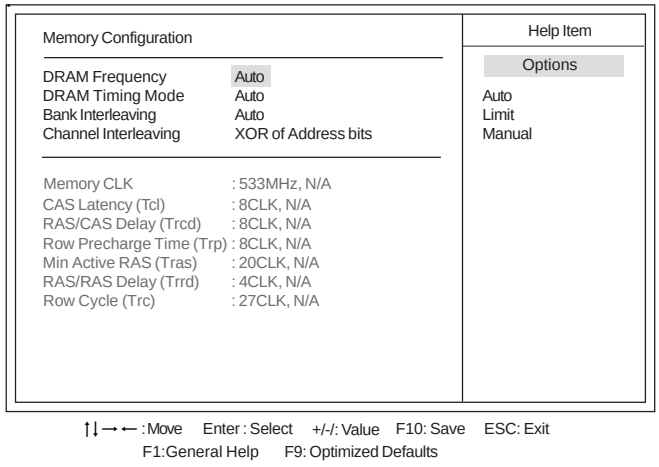
M.I.B. II (MB Intelligent Bios)

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
M.I.B. II(MB Intelligent BIOS)
▶ Memory Configuration Press Enter
Advanced Clock Calibration Disabled
CoreX Control Disabled
CPU Frequency Ctrl: Auto
HT Frequency Auto
CPU/HT Reference Clock (MHz) 200
Auto Detect DIMM/PCI Clk Enabled
Spread Spectrum Enabled
CPU Voltage Disabled
DIMM Voltage Disabled
NB Voltage +50mV
SB Voltage 1.20v
AMD Athlon (tm) II X2 250 Processor
Speed : 3000MHz, NB CLK: 2000MHz
Physical Count : 1
Logical Count : 4
Current CPU Frequency 3000MHz
Current CPU Voltage 1.3250v
Current NB Frequency 2000MHz
DIMM Voltage Default 1.60v
NB Voltage Default 1.15v
SB Voltage Default 1.20v
Help Item
↑↓→←:Move Enter:Select +/-/:Value F10:Save ESC:Exit
F1:General Help F9: Optimized Defaults

► Memory Configuration

Scroll to this item and press <Enter> to view the following screen:


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Memory Configuration
Memory Configuration
DRAM Frequency Auto
DRAM Timing Mode Auto
Bank Interleaving Auto
Channel Interleaving XOR of Address bits
Memory CLK : 533MHz, N/A
CAS Latency (Tcl) : 8CLK, N/A
RAS/CAS Delay (Trcd) : 8CLK, N/A
Row Precharge Time (Trp) : 8CLK, N/A
Min Active RAS (Tras) : 20CLK, N/A
RAS/RAS Delay (Trrd) : 4CLK, N/A
Row Cycle (Trc) : 27CLK, N/A
Help Item
Options
Auto
Limit
Manual
↑↓→←:Move Enter:Select +/-/:Value F10:Save ESC:Exit
F1:General Help F9: Optimized Defaults

DRAM Frequency (Auto)

This item enables users to adjust the DRAM frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

DRAM Timing Mode (Auto)

This item enables you to specify the DRAM timing mode to be configured automatically or manually.

Bank Interleaving (Auto)

This item is used to set the bank interleaving.

Channel Interleaving (XOR of Address bits)

This item is used to set the channel interleaving.

Memory CLK (533 MHz, N/A)

This item is used to set the memory clock mode.

CAS Latency (Tcl) (8 CLK, N/A)

This item controls the timing delay (inclockcycles) before the DRAM starts a read command after receiving it.

RAS/CAS Delay (Trcd) (8 CLK, N/A)

This is the amount of time a CAS is performed after a RAS. The lower the better, but some DRAM does not support low figures.

Row Precharge Time (Trp) (8 CLK, N/A)

This item specifies the Row precharge to Active or Auto-Refresh of the same bank.

Min Active RAS (Tras) (20 CLK, N/A)

This item determins the time RAS takes to read from and write to a memory cell.

RAS/RAS Delay (Trrd) (4 CLK, N/A)

This item specifies the active-to-active delay of different banks.

Row Cycle (Trc) (27 CLK, N/A)

Use this item to specify the Row Cycle Time.

Press <Esc> to return to the M.I.B.II page.

Advanced Clock Calibration (Disabled)

This item can enable greater performance turning margin for the AMD PhenomTMBlack Edition CPUs. The optimal gain can be seen in configurations that use high-end CPU cooling solution in combination with elevated CPU core voltage (CPUVID) value. The motherboards that support “anvanced Clock Calibration” feature should enable power delivery capabilities that exceed the 125W CPU TDP specifica-tions in order to maximize the performance tuning potential.

CoreX Control (Disabled)

This item allows you to enable or disable CoreX control.

CPU Frequency Ctrl (Auto)

This item allows user to enable or disable CPU frequency control.

HT Frequency (Auto)

This item enables users to manually set up the HyperTransport frequency. If Manual,the HT Frequency Value will display, and the options are 200 MHz, 400 MHz, 600MHz, 800 MHz and 1000 MHz.

CPU/HT Reference Clock (MHz) (200)

Use this item to set the CPU/HT Reference Clock through clock gen.

Auto Detect DIMM/PCI Clk (Enabled)

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

Spread Spectrum (Enabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

CPU Voltage (Disabled)

This item allows users to adjust the CPU voltage.

DIMM Voltage (Disabled)

This item allows users to adjust the DIMM voltage.

Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This function is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Enable for AM2+ / Disable for AM2)

NB Voltage (+50mV)

This item allows users to adjust the Northbridge voltage.

SB Voltage (1.20V)

This item allows users to adjust the Southbridge voltage.

AMD Athlon (tm) II x2 250 Processor

This is display-only field and displays the information of the CPU installed in your computer.

NB CLK (2000 MHz)

This item shows the frequency of Northbridge clock.

Physical/Logical Count (1/4)

This item shows the physical/logical count.

Current CPU Frequency (3000 MHz)

This item indicates the current CPU frequency. Users can not make any change tothis item. Please noted that the frequency will be varied with different CPU.

Current CPU Voltage (1.3250v)

This item indicates the current CPU voltage.

Current NB Frequency (2000 MHz)

This item indicates the current NB frequency.

DIMM Voltage Default (1.60v)

This item indicates the current NB frequency.

NB Voltage Default (1.15v)

This item indicates the NB voltage default value.

SB Voltage Default (1.20v)

This item indicates the SB voltage default value.

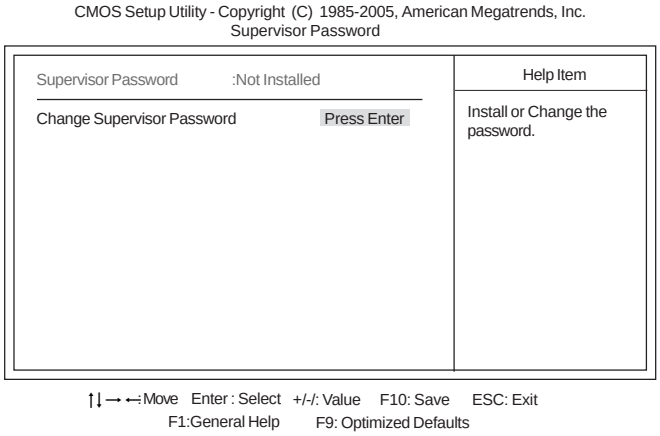
Press <Esc> to return to the main menu setting page.

Load Default Settings

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then press <Enter>, the Setup Utility loads all default values; or select [Cancel], and then press <Enter>, the Setup Utility does not load default values.

Supervisor Password

This page helps you install or change a password.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
Supervisor Password
Supervisor Password :Not Installed
Change Supervisor Password
Press Enter
Help Item
Install or Change the password.
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

Supervisor Password (Not Installed)

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

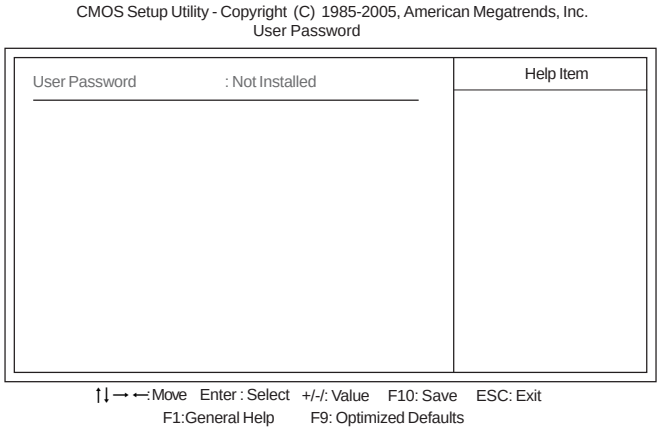
Change Supervisor Password (Press Enter)

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

User Password

This page helps you install or change a password.


CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.
User Password
User Password : Not Installed
Help Item
↑↓→←:Move Enter : Select +/-/: Value F10: Save ESC: Exit
F1:General Help F9: Optimized Defaults

User Password (Not Installed)

This item indicates whether a user password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

Press <Esc> to return to the main menu setting page.

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, select [OK] to save and exit, or select [Cancel] to return to the main menu.

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.

If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.

Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
5. Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
6. At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AMINF340.EXE040706.ROM
7. When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

Chapter 4
Using the Motherboard Software

About the Software DVD-ROM/CD-ROM

The support software DVD-ROM/CD-ROM that is included in the motherboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your motherboard version. More information on some programs is available in a README file, located in the same directory as the software. Before installing any software, always inspect the folder for files named README.TXT or something similar. These files may contain important information that is not included in this manual.

1. Never try to install all software from folder that is not specified for use with your motherboard.

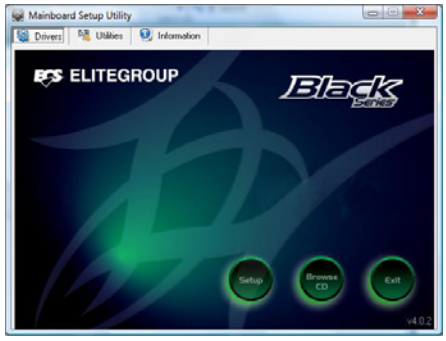
2. The notice of Intel HD Audio Installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center ***"before"*** *installing HD audio driver bundled in the driver disk. Please log on to http://support.microsoft.com/default.aspx?scid=kb;en-us;901105# appliesto for more information.*

Auto-installing under Windows XP/Vista/7

The Auto-install DVD-ROM/CD-ROM makes it easy for you to install the drivers and software for your motherboard.

If the Auto-install DVD-ROM/CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to the Utility Folder Installation Notes later in this chapter.

The support software DVD-ROM/CD-ROM disk loads automatically under Windows XP/Vista/7. When you insert the DVD-ROM/CD-ROM disk in the DVD-ROM/CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



If the opening screen does not appear; double-click the file "setup.exe" in the root directory.

Drivers Tab

Setup	Click the **Setup** button to run the software installation program.
Browse CD	The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support disk. Before installing the software from Windows Explorer, look for a file named README.TXT something similar. This file may contain important information to help you install the software correctly. Some software is installed in separate folders for different operating systems. In installing the software, execute a file named SETUP.EXE by double-clicking the file and then following the instructions on the screen.
Exit	The **EXIT** button closes the Auto Setup window.

Utilities Tab

Lists the software utilities that are available on the disk.

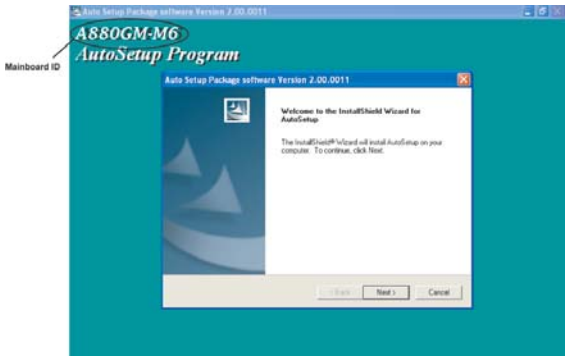
Information Tab

Displays the path for all software and drivers available on the disk.

Running Setup

Follow these instructions to install device drivers and software for the motherboard:

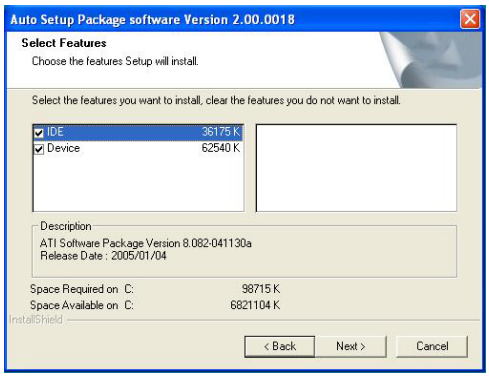
1. *Click **Setup**. The installation program begins:*



The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

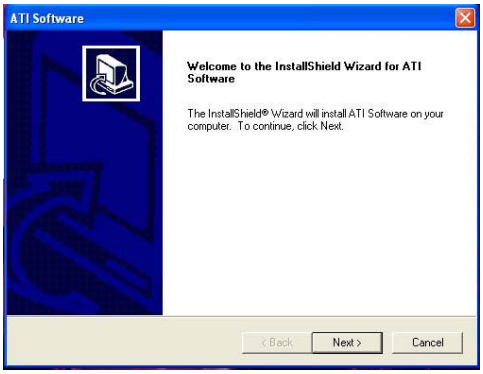
The motherboard identification is located in the upper left-hand corner.

2. *Click **Next.** The following screen appears:*


Auto Setup Package software Version 2.00.0018
Select Features
Choose the features Setup will install.
Select the features you want to install, clear the features you do not want to install.
IDE 36175 K
Device 62540 K
Description
ATI Software Package Version 8.082-041130a
Release Date : 2005/01/04
Space Required on C: 98715 K
Space Available on C: 6821104 K
InstallShield
< Back
Next >
Cancel

3. *Check the box next to the items you want to install. The default options are recommended.*

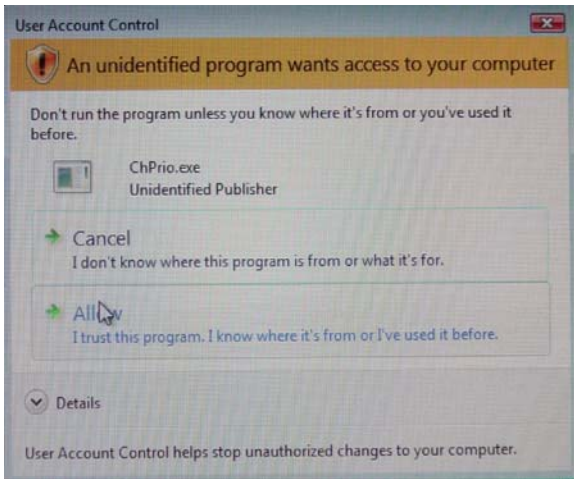
4. *Click **Next** run the Installation Wizard. An item installation screen appears:*


ATI Software
Welcome to the InstallShield Wizard for ATI Software
The InstallShield® Wizard will install ATI Software on your computer. To continue, click Next.
< Back
Next >
Cancel

5. *Follow the instructions on the screen to install the items.*

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Windows Vista/7 will appear below UAC (User Account Control) message after the system restart. You must select "Allow" to install the next driver. Continue this process to complete the drivers installation.


User Account Control
An unidentified program wants access to your computer
Don't run the program unless you know where it's from or you've used it before.
ChPrio.exe
Unidentified Publisher
Cancel
I don't know where this program is from or what it's for.
Allow
I trust this program. I know where it's from or I've used it before.
Details
User Account Control helps stop unauthorized changes to your computer.

Manual Installation

Insert the disk in the DVD-ROM/CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your motherboard.

Look for the chipset and motherboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

Utility Software Reference

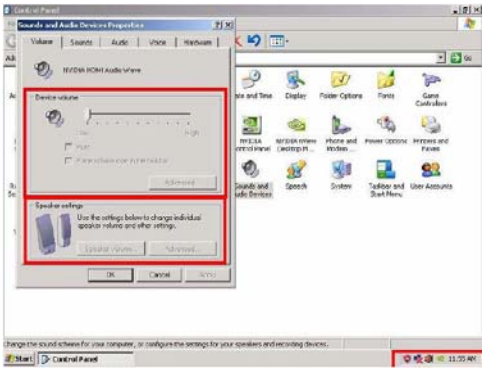
All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

1. *These software(s) are subject to change at anytime without prior no tice. Please refer to the support disk for available software.*
2. *Please go to ECS website to download AMD Cool "n" Quiet™ technology.*

HDMI Audio setting SOP

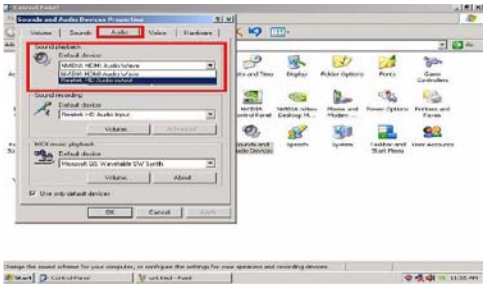
OS: XP system

1. Control Panel-->Sound and Audio Device Properties



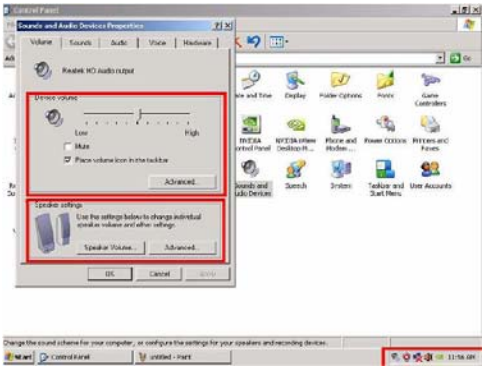
2. a. Audio--> Sound playback--> Default device--> HD Auido Output

b. Audio--> Sound playback--> Default device--> HDMI Auido Output



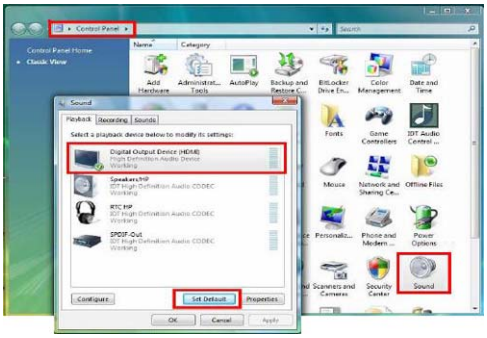
3. a. User Playback Audio speaker function working

b. User Playback HDMI speaker function working

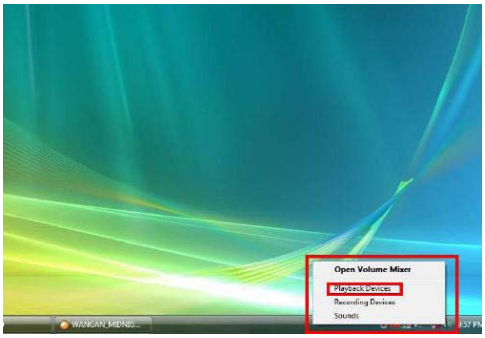


OS: Vista system

Control Panel--> Soundback--> Sound--> Digital Output Device (HDMI) --> Set Default

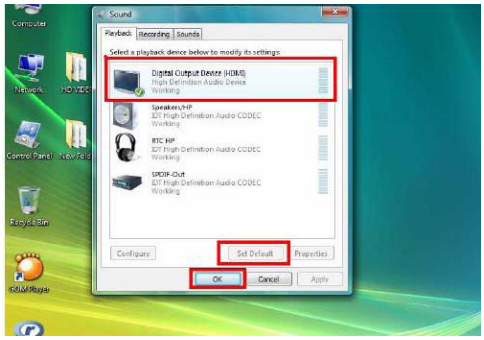


1. Volume --> Playback



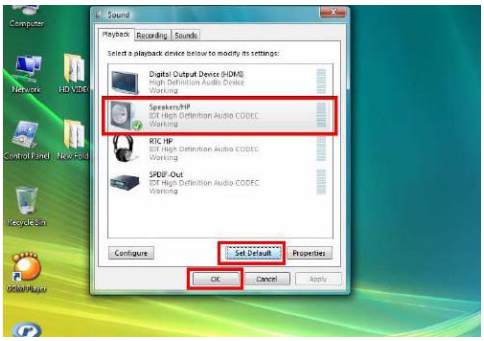
2. Digital Output Device (HDMI) --> Set Default --> OK

User HDMI Playback function working



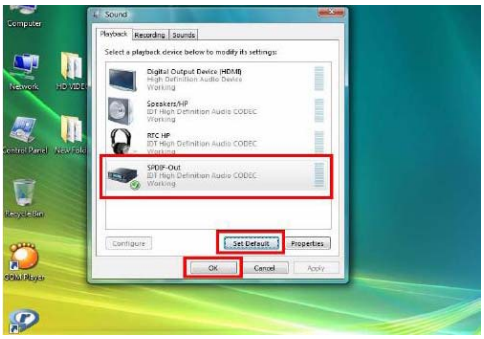
3. Speaker --> Set Default --> OK

User Speaker Palyback function working



4. SPDIF-Out --> Set Default --> OK

User SPDIF-Out Playback function working



This concludes chapter 4.

Memo

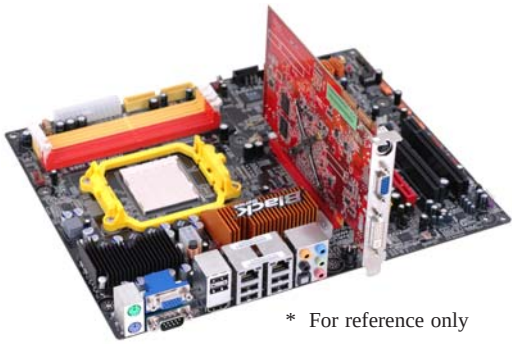
Chapter 5
Hybrid Graphics® Technology Support

Hybrid Graphics® Technology

The Hybrid Graphics® technology provides significant display performance boost to AMD-based systems by inserting the external PCI Express graphics card and enabling both the discrete GPU and the AMD785G graphics core to render simultaneously in Hybrid CrossFire™ mode.

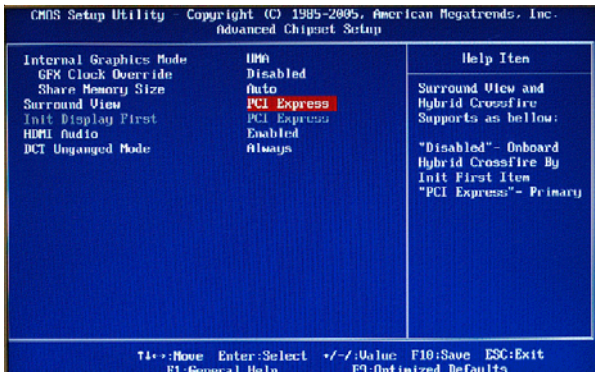
Follow the steps below to start the Hybrid Graphics® technology.

1.Insert a graphics card (which can be used for Hybrid Graphics® technology, such as HD3400 series) into the **PCIEX16** slot.
Make sure that the card is properly seated on the slot.



* For reference only

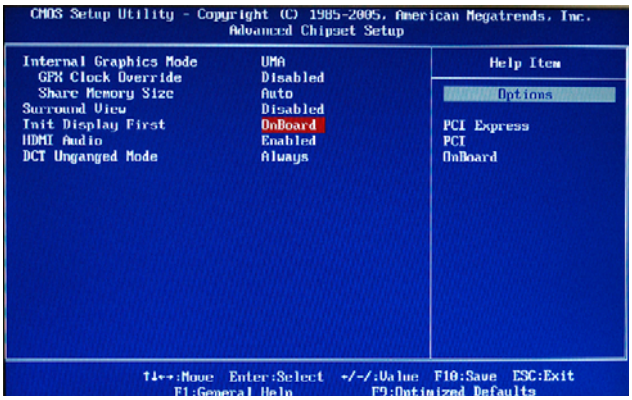
2. For Hybrid Graphics®, if display by PCI-Express, you must enter the BIOS, set the *Surround View* in *Advanced Chipset Setup* to **PCI Express**. Then press F10 to save the configuration and exit the BIOS. After entering OS, enter *Catalyst Control Center* to enable Hybrid CrossFire™.



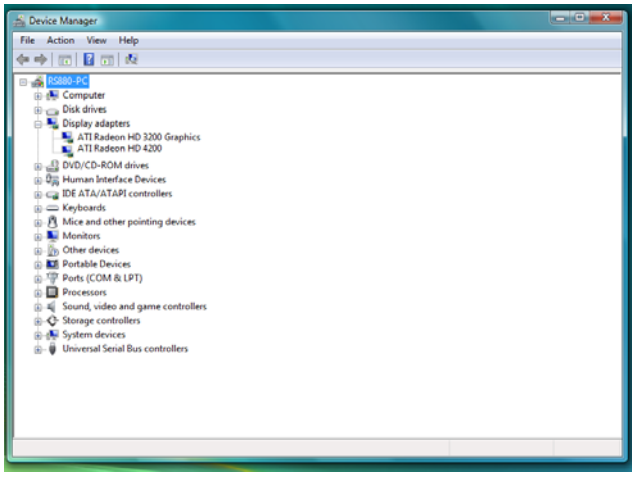
SurroundView™ provides the power and convenience of multiadapter, multimonitor support for computers that use a PCI-Express based graphics card in conjunction with ATI integrated graphic processors. And there are two options: Disabled and PCI Express.

If *SurroundView™* set to **Disabled**, and *Init Display First* set to **OnBoard**, SurroundView™ will be Enabled by Catalyst Control Center based on cancel the *Enable CrossFire™* option.

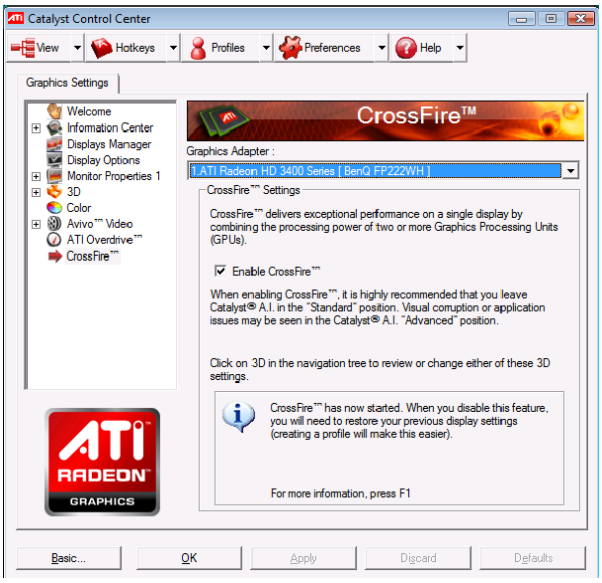
While if display by OnBoard, you must enter the BIOS, set the *Init Display First* in *Advanced Chipset Setup* to **OnBoard**. Then press F10 to save the configuration and exit the BIOS. After entering OS, enter *Catalyst Control Center* to enable CrossFire™.



3. Click with your right mouse button on *My Computer*, then click the option *Manage* and choose the *Device Manager*, finally, click the Display Adapters. The following screen appears. Be sure that the external ATI graphics (ATI Radeon HD 3400 Grapics) and Onboard graphics (Radeon HD 4200) are both displaying in the Display adapters.



4. Enter Catalyst Control Center, you can see the option of *CrossFire™*, click it and select *Enable CrossFire™*, then Hybrid Graphics® starts.


Catalyst Control Center
View
Hotkeys
Profiles
Preferences
Help
Graphics Settings
Welcome
Information Center
Displays Manager
Display Options
Monitor Properties 1
3D
Color
Avivo™ Video
ATI Overdrive™
CrossFire™
CrossFire™
Graphics Adapter :
1.ATI Radeon HD 3400 Series [BenQ FP222WH]
CrossFire™ Settings
CrossFire™ delivers exceptional performance on a single display by combining the processing power of two or more Graphics Processing Units (GPUs).
Enable CrossFire™
When enabling CrossFire™, it is highly recommended that you leave Catalyst® A.I. in the "Standard" position. Visual corruption or application issues may be seen in the Catalyst® A.I. "Advanced" position.
Click on 3D in the navigation tree to review or change either of these 3D settings.
CrossFire™ has now started. When you disable this feature, you will need to restore your previous display settings (creating a profile will make this easier).
For more information, press F1
ATI RADEON GRAPHICS
Basic...
OK
Apply
Discard
Defaults

To disable Hybrid Graphics®, please make sure to cancel *Enable CrossFire™* in *Catalyst Control Center* firstly.

Memo

Chapter 6
Setting Up AMD SB710 RAID Configuration

Setting Up a bootable RAID Array

This section explains how to configure a bootable AMD RAID array.

Setting Up the BIOS

1 Start your computer, then press Delete to enter the BIOS setup.

The BIOS CMOS Setup Utility screen appears.

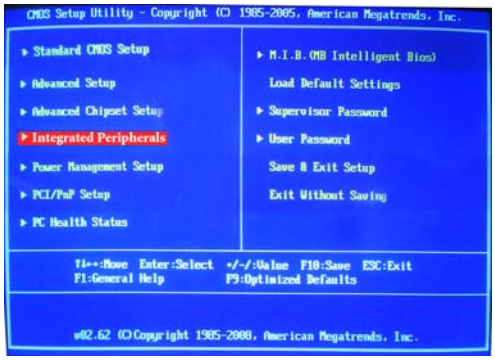


Figure 1.1 BIOS CMOS Setup Utility Main Screen

2 Use the arrow keys to select Integrated Peripherals (see Figure 1.1), then press Enter.

The Integrated Peripherals screen (or a screen similar to it) appears.

Figure 1.2 Integrated Peripherals Screen

3 Use the arrow keys to select the SATA Configuration (see Figure 1.2) and globally set SATA Configuration to RAID.

4 Press F10 to save the configuration and exit.
The PC reboots.

5 Enter the RAID BIOS Setup by pressing Ctrl-F when prompted, and proceed to set up the AMD RAID BIOS as described in the next section.

Configuring the AMD RAID BIOS

The AMD RAID BIOS set up lets you choose the RAID type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup:

1 Wait until you see the RAID software prompting you to press Ctrl-F.

The RAID prompt appears as part of the system POST and boot process prior to loading of the OS. You have a few seconds to press Ctrl-F before the screen disappears.

2 Press Ctrl-F.

The Main Menu screen appears (Figure 1.3).

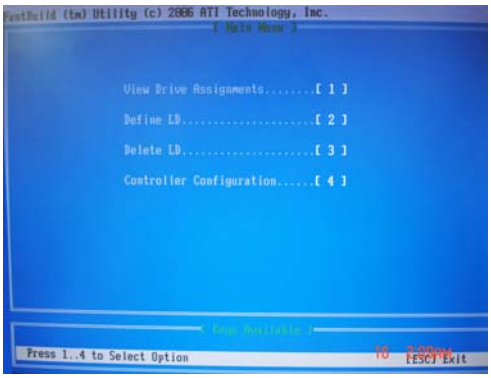

FastBuild (tm) Utility (c) 2006 ATI Technology, Inc.
[Main Menu]
View Drive Assignments.....[1]
Define LD.....[2]
Delete LD.....[3]
Controller Configuration.....[4]
Logs Available !
Press 1..4 to Select Option
[ESC] Exit

Figure 1.3 Main Menu

3 Select [2], then select LD 1 in the following page.

The Define LD Menu screen appears (Figure 1.4).

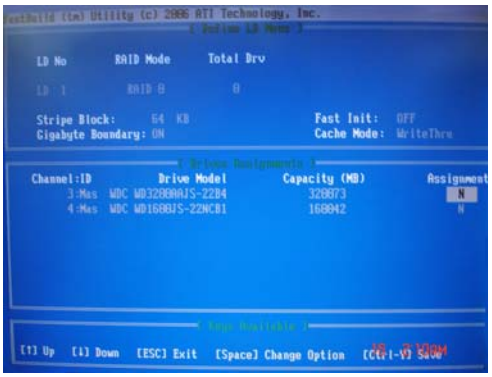


Figure 1.4 Define LD Menu

Using the Define a New Array Screen

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

- **Selecting the RAID Mode**

  By default, this is set to Mirroring. To change to a different RAID mode, press the spacebar until the mode that you want appears in the RAID Mode box—RAID0/1/10/JBOD.

  Note: Not all RAID levels are supported on all platforms.

- **Selecting the Stripe Block Size**

  Stripe block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be 64 KB and 128 KB. When choose RAID 1, the Stripe block size is unchangable.

Assigning the Disks

1. Select the Assignment to Y to designate a free disk to be used as a RAID array disk.

   Figure 1.5 illustrates the Define a New Array screen after two disks have been assigned as RAID 0 array disks.

Figure 1.5 FastBuild Utility—Array Disks Assigned

2. Press Ctrl-Y to save the configuration and exit.

   The Define LD Menu screen appears (Figure 1.6).

Figure 1.6 Define LD Menu

3. Press ESC to exit.

   The Main Menu screen appears (Figure 1.7).

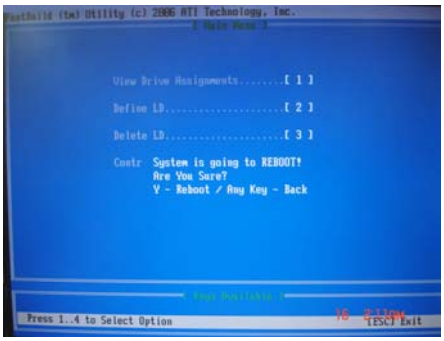

View Drive Assignments.....[1]
Define LD.....[2]
Delete LD.....[3]
System is going to REBOOT!
Are You Sure?
Y - Reboot / Any Key - Back
Press 1...4 to Select Option
[ESC] Exit

Figure 1.7 Main Menu

4 Press Y to reboot.

The following screen appears (Figure 1.8).

ID MODE SIZE TRACK-MAPPING STATUS
1 2+0 RAID 0 31000GM 30661/255/63 Functional
2 ASUS DVD-E818AT
Press (Ctrl-F) to enter FastBuild (tm) Utility...

Figure 1.8

Installing the RAID Drivers

Your system may come with a Windows install CD that already includes AMD RAID drivers. If so, then this section is not relevant.

If that is not the case (or you are trying to install a new version of Windows), then you will need an AMD RAID driver F6 install floppy. Check to see if one came with your system. If not, you can create one by downloading the appropriate driver package and following the steps in this section.

1 Copy all files in "...\RAID\ATI\SB750\Floppy\Win3264" to a floppy disk.

2 After you complete the RAID BIOS setup, boot from the Windows CD.

The Windows Setup program starts.

Figure 1.9

3 Press F6 and wait a few moments for the Windows Setup screen to appear.

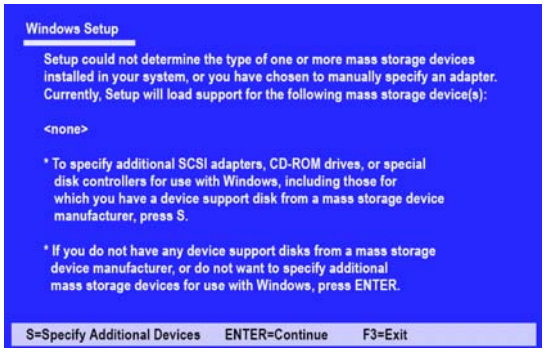

Windows Setup
Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage device(s):
<none>
* To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.
* If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.
S=Specify Additional Devices
ENTER=Continue
F3=Exit

Figure 1.10 Windows Setup—Specify Devices

4 Specify the AMD drivers.

a Insert the floppy that has the RAID driver, press S, then press Enter.

The following Windows Setup screen appears:

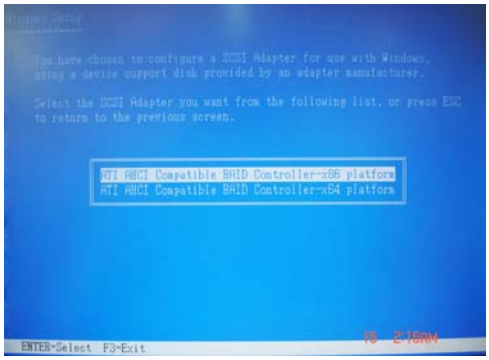

You have chosen to configure a SCSI Adapter for use with Windows,
using a device support disk provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following list, or press ESC
to return to the previous screen.
ATI AHCI Compatible RAID Controller-x86 platform
ATI AHCI Compatible RAID Controller-x64 platform
ENTER=Select F3=Exit

Figure 1.11 Windows Setup—Selected SCSI Adapter

b Select "ATI AHCI Compatible RAID Controller-x86 platform" and press Enter for 32-bit OS or Select "ATI AHCI Compatible RAID Controller-x64 platform" and press Enter for 64-bit OS.

The following Windows Setup screen appears listing both drivers:.

Setup will load support for the following mass storage device(s):
ATI AHCI Compatible RAID Controller-x86 platform
* To specify additional SCSI adapters, CD-ROM drives, or special
disk controllers for use with Windows, including those for
which you have a device support disk from a mass storage device
manufacturer, press S.
* If you do not have any device support disks from a mass storage
device manufacturer, or do not want to specify additional
mass storage devices for use with Windows, press ENTER.
S=Specify Additional Device ENTER=Continue F3=Exit

Figure 1.12 Windows Setup—AMD drives listed

5 Press Enter to continue with Windows XP Installation.

Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.

6 Follow the instructions on how to install Windows XP.

After Windows XP is completely installed, it is recommended that you install the ForceWare software in order to access the FastBuild RAID Management tool.

Note: Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

Memo

Chapter 6
Setting Up eJIFFY

Introduction

eJIFFY is a fast boot program under Linux. Instead of waiting Windows O.S to start execution, eJIFFY is ready to provide users the instant enjoyment on web browsing, photo review and online chat just within several seconds after boot up.

Note: eJIFFY is ECS ***optional*** feature utility corresponding to the DVD activation and BIOS setup. Please check the hard copy user's guide or product color-box to see if the model has embodded eJIFFY feature. (eJIFFY icon on color-box)

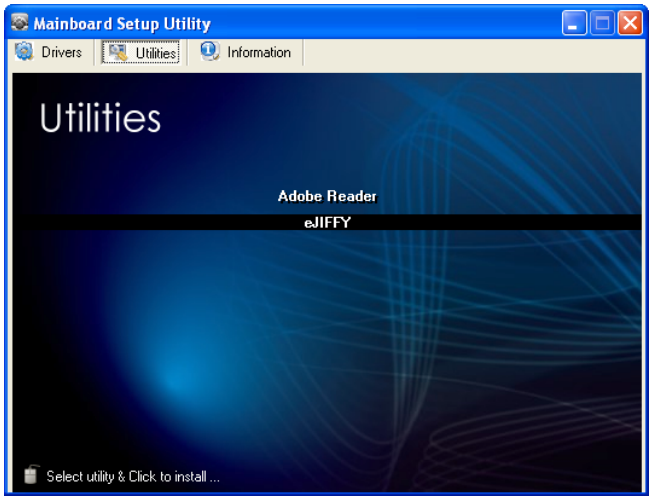
Version: 5.0

Installation and BIOS Setup

DVD Activation

Finish the DVD utility setup, and then set the BIOS to complete eJIFFY activation.

1. Insert ECS software utility DVD and enter below “Utilities” screen. Click eJIFFY feature item to install.



2. Follow the onscreen instructions to finish eJIFFY setup.

Setup - eJIFFY
Welcome to the eJIFFY Setup Wizard
This will install eJIFFY v1.1 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

3. After setting up eJIFFY under Windows, you can switch eJIFFY display/keyboard language from English to your local language. The changes will be applied after rebooting.

Note: The keyboard language selection list offers several more regional keyboard setups to switch with the default English typing. Please refer to the usage FAQ for more tips.

4. Restart your computer after eJIFFY installation. Press <DEL> or click the BIOS Setup button on the post screen to enter the BIOS setup page after boot up.

5. And then enter the *Advanced Setup* page to enable the item *ECS eJIFFY Function*. Press F10 to save the configuration and exit. Restart your computer.

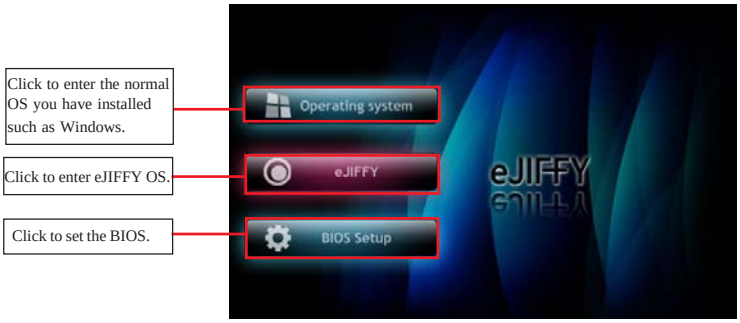
CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Advanced Setup
HT Frequency Auto Auto
AMD C8Q Enabled
Quick Power on Self Test Enabled
Boot Up Numlock Status On
LOGO Display Enabled
APIC Mode Enabled
1st Boot Device ARY01 NVIDIA SPAN 1
2nd Boot Device CD/DVD
3rd Boot Device Removable Dev.
Hard Disk Drives Press Enter
Boot Other Device Yes
ECS eJIFFY Function Enabled
Restore Default Settings No
Help Item
Options
Disabled
Enabled
↑↓↔:Move Enter:Select +/-/:Value F10:Save ESC:Exit
F1:General Help F9:Load Default Settings

Note: 1. eJIFFY is available in SATA/IDE/AHCI mode. It does not support RAID configuration and the onboard 34-pin floppy drives.

2. Please refer to ECS website for new eJIFFY application updates.

Entering eJIFFY

The post screen appears within several seconds after boot up and it has three buttons on it, Operating system, eJIFFY and BIOS Setup.


Click to enter the normal OS you have installed such as Windows.
Click to enter eJIFFY OS.
Click to set the BIOS.
Operating system
eJIFFY
BIOS Setup
eJIFFY

If you click eJIFFY, the following screen will appear. And If you make no choice it will enter the normal OS automatically after ten seconds.

Feature Icons

The following illustration shows the main feature icons that eJIFFY provides on the menu.

eWeb: Firefox for web browsing/webmail and watching flash video.

ePix: Photo viewing.

ePal: On-line chat tool to use the most popular IMs in the world. (MSN, ICQ, AIM, etc.)

Shows ePal on-line connection status.

Shut Down/Restart: Ends your session and turns off the computer./Ends your session and restart the computer..

Click once to connect the storage disk to your computer. Click for the second time to remove your storage disk safely. (please refer to the FAQ for more usage information.)

Shows the network connection status.

Language Control Panel

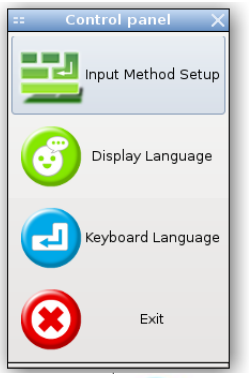
Switch Keyboard Languages

Usage FAQ

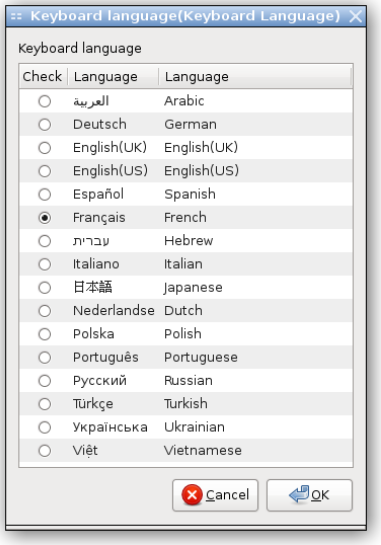
Language Control Panel: Besides setting English as the default interface, eJIFFY offers multi-language displays and keyboard settings for language-switch. Open the language control panel to select a preferable language setting.

Keyboard Language Setup

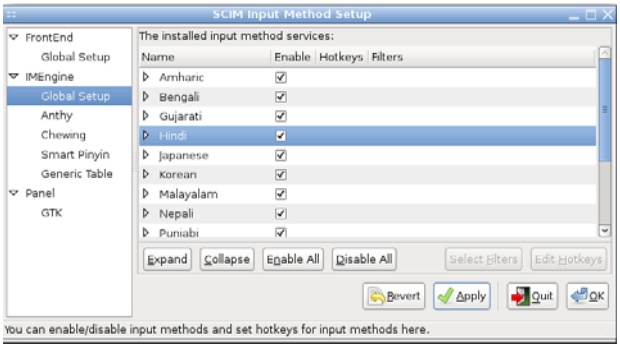
Step1. Click to open the language control panel.

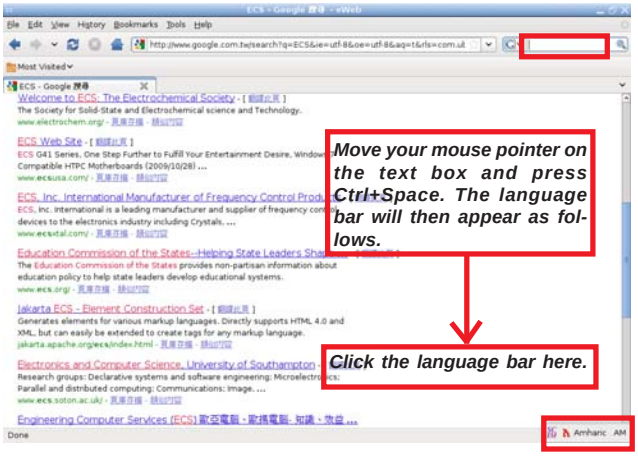


Step 2: Click “Keyboard Language” icon to open the keyboard selection list, which offers several regional keyboard settings besides default English keyboard.
Step 3: Click the selected keyboard language (e.g. French) and press “OK”.



Click to enable all possible language inputs you want to apply, and click "Apply":

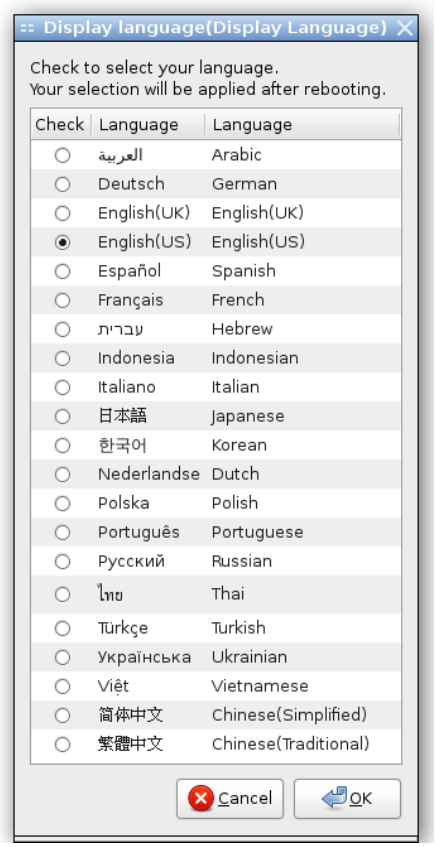




Select your desired language

How to change display language?

Open the Language Control Panel and click to show the display language list. Check your desired display language. Your selected display language will be applied after rebooting.



Note: *Details about eJIFFY please refer to eJIFFY in disk.*

Memo

Chapter 8
Trouble Shooting

Start up problems during assembly

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

a) System does not power up and the fans are not running.

1.Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.

2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.

3. Check the CPU FAN connector is connected to the motherboard.

4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.

5. Check the 12V power connector is connected to the motherboard.

6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

b) Power is on, fans are running but there is no display

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.
2. Check the VGA adapter card (if applicable) is inserted properly.
3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
   a. continuous 3 short beeps : memory not detected
   b. 1 long beep and 8 short beeps : VGA not detected

c) The PC suddenly shuts down while booting up.

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.
2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

Start up problems after prolong use

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR_CMOS jumper. Refer to CLR_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.

2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.

3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

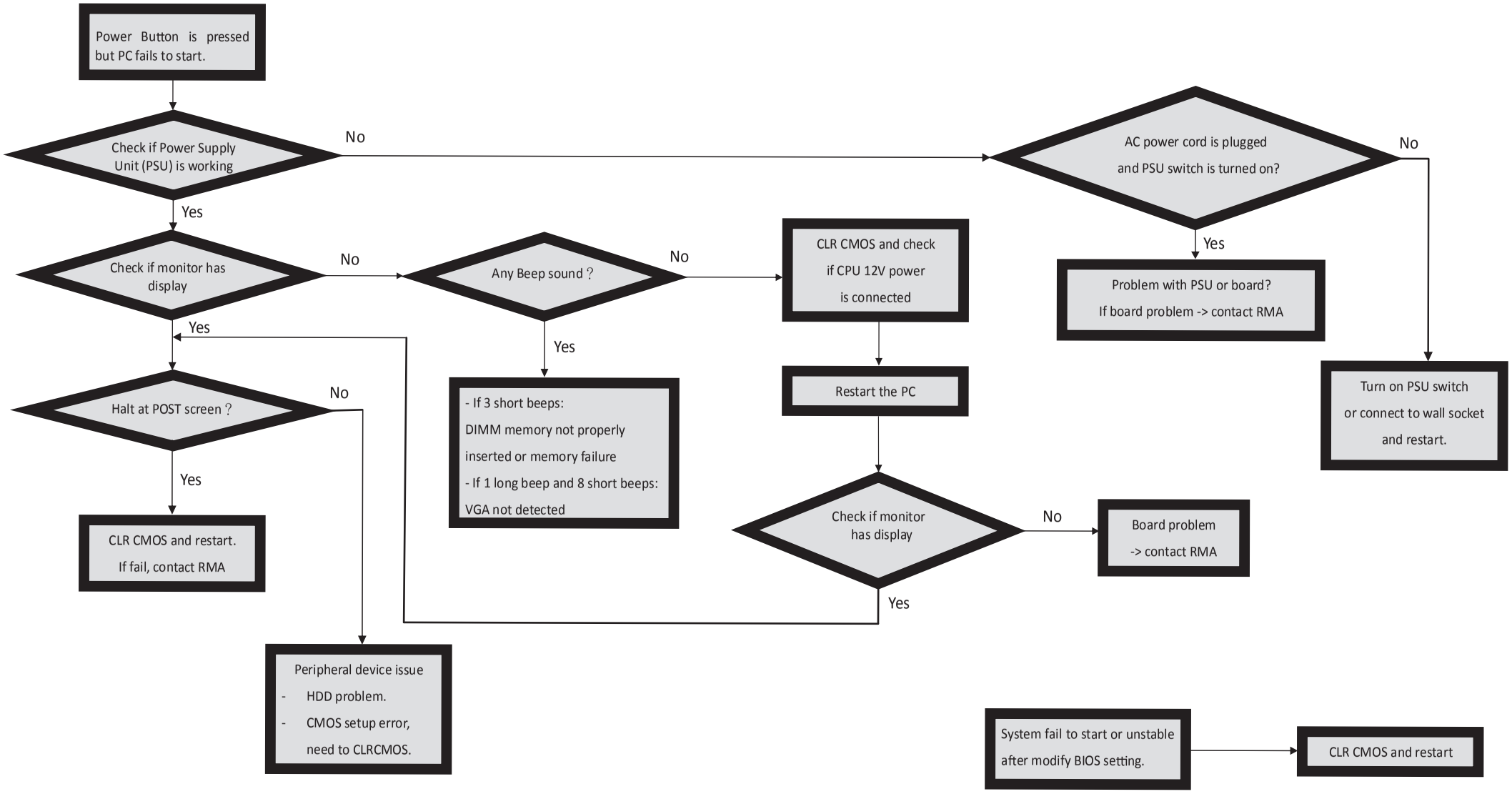
4. Remove the hard drive, optical drive or DDR memory to determine which of these components may be at fault.

Maintenance and care tips

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.
2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.
3. Routinely clean the CPU cooler fan to remove dust and hair.
4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.
5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its lifespan.
6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

Basic Troubleshooting Flowchart


Power Button is pressed but PC fails to start.
Check if Power Supply Unit (PSU) is working
No
AC power cord is plugged and PSU switch is turned on?
No
Yes
Problem with PSU or board? If board problem -> contact RMA
Turn on PSU switch or connect to wall socket and restart.
Yes
Check if monitor has display
No
Any Beep sound ?
No
CLR CMOS and check if CPU 12V power is connected
Yes
- If 3 short beeps: DIMM memory not properly inserted or memory failure
- If 1 long beep and 8 short beeps: VGA not detected
Restart the PC
Yes
Halt at POST screen ?
No
Yes
CLR CMOS and restart. If fail, contact RMA
Check if monitor has display
No
Board problem -> contact RMA
Yes
Peripheral device issue
- HDD problem.
- CMOS setup error, need to CLRCMOS.
System fail to start or unstable after modify BIOS setting.
CLR CMOS and restart

Memo

POST Code Checkpoints

The POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process. The following table describes the type of checkpoints that may occur during the POST portion of the BIOS :

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer.Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache - Init Local APIC
C1	Set up boot strap processor Information
C2	Set up boot strap processor for POST
C5	Enumerate and set up application processors
C6	Re-enable cache for boot strap processor
C7	Early CPU Init Exit
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
24	Uncompress and initialize any platform specific BIOS modules.
30	Initialize System Management Interrupt.
2A	Initializes different devices through DIM. See *DIM Code Checkpoints* section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM

	module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See *DIM Code Checkpoints* section of document for more information.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, … etc.) successfully installed in the system and update the BDA, EBDA…etc.
50	Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7A	Initializes remaining option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported)
8E	Program the peripheral parameters. Enable/Disable NMI as selected
90	Late POST initialization of system management interrupt.
A0	Check boot password if installed.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A8	Prepare CPU for OS boot including final MTRR values.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector. Deinitializes the ADM module.
AB	Prepare BBS for Int 19 boot.
AC	End of POST initialization of chipset registers.
B1	Save system context for ACPI.
00	Passes control to OS Loader (typically INT19h).
61-70	OEM POST Error. This range is reserved for chipset vendors & system manufacturers. The error associated with this value may be different from one platform to the next.